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Capital Accumulation and Metabolic Rifts: Climate Change and Indigenous
Resistance in the Canadian Arctic

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Abstract

Climate change is increasingly impacting populations globally, influencing the severity of storms, floods, droughts and related consequences. Using Marxist and environmental sociological theory, this thesis critically examines the legacy of capitalism and colonialism in relation to climate change, with particular attention focused on the role of water in all three. Bringing these strands together is a case study of climate change and Inuit responsiveness in the Canadian Arctic.

In this thesis I argue that climate change is not just a problem of capitalism, but of ontology, specifically the understanding of the human-environment relation in terms of subjects and objects. Against this separating ontology, I highlight the interconnection of multiple threads of causality and interdependency. The effects of capitalism cannot be separated from the effects of colonialism, and while indigenous people have been subjected to both, they also continue to adhere to alternative ontologies that may offer guidance to a way forward.

I explore the problem of capitalist ontology and possible alternatives through an analysis of the integral role of water in human life. While water is only one element in the environment that could be focused on, consideration of its centrality to the development of capitalism and colonialism serves as an important reminder for us of our continuing dependence on nature. We can also see the centrality of water in the effects of climate change, such as floods, droughts and storms.

In this thesis, I explore the ramifications of climate change in the Arctic as an important case study for identifying possible future responses to this ecological crisis. The Arctic is one area in which the effects of climate change are already being experienced in a profound way. Thus, looking at responses to climate change in the Arctic can highlight possibilities that might be pursued elsewhere as its effects mount. Additionally, as the region remains predominantly indigenous, it is also a site in which indigenous ontologies play a part in the development of viable responses to the ecological crisis.

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This thesis is dedicated to the circumpolar peoples of the Arctic. May you thrive on the land you call home. This thesis is also dedicated to my friend Kimi Worrell, who tragically passed away before her time.

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We squander her soil and suck out her sweet black blood to burn it.
We turn money into God and salivate over opportunities
to crumple and crinkle our souls for that paper, that gold.
Money has spent us.

(Tagaq 2016)

Chapter One: Introduction

Some things are so big people cannot see them. A year ago I took the bus from Auckland to Taupo. While I was travelling through the Mamaku Plateau, I took notice of the strange rock formations that punctuated the landscape. They compelled me to think about how the land might have looked thousands of years ago. After ruminating on the vulcanism of Aotearoa, my thoughts drifted to how lush the region must have been with native forests before they were cleared to give way to agriculture. The exercise startled me because for so long I thought that expansive green pastures were natural features of the landscape. I had given no thought to how the process of industrialisation and colonisation affected the land. Human impact on the environment has been sustained and normalised for so long that it was difficult to discern how it could have been different.

Indeed, the consequences of human activity on the planet can be so massive in scale that people often refuse to acknowledge them, even if they ostensibly occur within their lifetime. From 1957, geophysicist Joseph Farman began collecting ozone readings in the Antarctic (Vitello 2003). He was often met with derision from his colleagues as they believed the task was pointless, considering that ozone levels showed remarkably little change over the course of years (Vitello 2003). However, in 1982 Farman collected ozone samples that were so radically different that he assumed his measuring tools had malfunctioned (Vitello 2003). He purchased new equipment, completed multiple checks, and managed to produce even more extreme results: ozone levels had dropped by forty percent over the course of nine

years (Vitello 2003). Clearly, the planet was in jeopardy, as ultraviolet light normally shielded by the ozone layer threatened the health of biota in the affected region.

After publishing his findings, and in response to the dire consequences a lack of ozone protection posed for the planet, policymakers drafted the Montreal Protocol in 1987, which outlined a process of phasing out the production of ozone-depleting chemicals (Vitello 2003). By the turn of the century, ozone depletion plateaued, as most countries around the world coordinated to solve the ecological crisis (Vitello 2003). After deliberating the science and careful negotiation, countries around the world were able to successfully tackle an ecological challenge that threatened life on the planet.

Climate Change and Water

Today, the planet is burdened with another ecological crisis, one that has been developing for hundreds of years. Unchecked anthropogenic climate change threatens the biosphere through the disruption of natural processes and cycles that humans and other biota rely upon. Due to the complexity of the phenomenon of climate change, it is beyond the scope of this thesis to delve extensively in the science. However, it is nonetheless useful to provide an overview and explain some of the key concepts of the process. Firstly, climate is not an expression of acute episodes of extreme weather; it is the overall trend in weather patterns over an extended period of time ranging from months to centuries and is scientifically measured via atmospheric variables, such as temperature, wind currents, moisture

and pressure (Stocker et al. 2013). Furthermore, the climate system of the earth is powered by solar radiation, with half of its energy derived by the sun and particular gases playing a key role in moderating the uptake of solar radiation (Stocker et al. 2013). Those gases, which include 'water vapour, carbon dioxide (CO₂), methane (CH₄), [and] nitrous oxide (N₂)' (126) contribute to warming the planet by what is called the 'greenhouse effect': by absorbing infrared radiation that is reflected from the planet's surface (Stocker et al. 2013). Thus, changes to the distribution of greenhouse gases have a marked effect on how much thermal energy is retained within the biosphere. Accordingly, the more methane or carbon dioxide is released into the atmosphere, the greater likelihood that the earth's climate will shift.

As will be discussed in Chapter Three, it is crucial to note that water and climate change are intrinsically connected. Water is instrumental in regulating air surface temperature and determines the extent and course of storms (Tvedt 2016). It is connected to the desiccation of tundra, forest fires and the isostatic rebound effect¹ (Bates et al. 2008; Tvedt 2016). While anthropogenic greenhouse gas emissions contribute significantly to the phenomenon, climate change is manifested in the disruption of hydrological cycles.

¹ Isostatic rebound is characterised by the gradual rising of land in response to the disintegration of glaciers (Houghton et al. 1996) and is expected to occur in the Canadian Arctic (Bates et al. 2008).

Climate Change and Capitalist Ontologies

For many, climate change is similar to the tsunami that battered Japan in 2011: the disaster was so incongruous and vast that it was difficult for some residents to comprehend what was actually happening (Solnit 2013). However, what is different about climate change is that it is much more insidious, as it manifests in gradual shifts, as slow changes that occasionally unravels as episodic trauma, like a prolonged heatwave that kills thousands, or a sustained drought that causes social unrest and war. While climate change may be incomprehensibly immense and destructive, like a tsunami, it is also imperceptible on a quotidian basis.

Climate change is poised to not only produce catastrophic ecological consequences for the planet but also to produce widespread economic losses (Pachauri and Meyer 2014). Economic growth is expected to slow, poverty is anticipated to increase, food security is projected to decrease, populations are likely to be displaced and the risk of violent conflicts is predicted to rise (Pachauri and Meyer 2014). In other words anthropogenic climate change poses substantive challenges to the viability of a prosperous, let alone sustainable, future for humanity.

Yet, greenhouse gas emission reduction targets are increasingly seen as an insurmountable challenge for nation states around the world. For example, policy makers anticipate significant disruption in the transformation of their economies (Lazarus 2009). Furthermore, those with the most capacity to address the problem

'are not only those who caused it, but also those with the least immediate incentive to act within that necessary shorter timeframe' (Lazarus 2009, 1160). For example, powerful countries such as the United States are among the largest greenhouse gas emitters, are least susceptible to pressure from other nations due to their economic and military strength, and are furthermore likely to be the least to suffer substantially from climate change (Lazarus 2009, 1160). Thus, actors striving for substantial transformation in the global economy towards a more sustainable future have been met with considerable inaction and indifference.

As Naomi Klein (2017) proclaims, the clock has struck midnight and we have simply run out of time. Clearly, the planet is in a state of crisis and resistance focusing on reforming the current economic system is grossly insufficient for the task at hand. It is, as Foster, York and Clark (2010) argue, insufficient because the capitalist mode of production is centred on the exploitation of both humanity and the planet. Because capitalism is predicated on perpetual expansion, in part due to its priority on the exchange of commodities rather than their use-value, it continually needs new resources to consume, whether they are derived socially or environmentally. While land has been enclosed for the purposes of producing capital, whether it be through manufacturing or other purposes, resource extraction of fossil fuels have been fundamental for its growth (Foster, York and Clark 2010). Fossil fuels account for the vast majority of greenhouse gas emissions (Edenhofer et al. 2014). Therefore, capitalism is largely responsible for the phenomenon of climate change, which ultimately threatens life on this planet. Capitalism, De Angelis (2004) asserts, will not cease until it has colonised all of life, and thus

extinguish it. Our response to climate change, therefore, must fundamentally challenge the existing socioeconomic and political world order.

However, replacing one mode of production for another risks replicating the same ecologically destructive patterns exhibited within capitalism. As will be argued in Chapter Three, archaeological studies have revealed that humans have long dominated and distorted natural processes to suit their own goals, wrecking ecological havoc in the process (Diamond 2005). In that regard, capitalism amplifies a human tendency to exploit and destroy, and therein the problem extends beyond the mode of production to one of ontology: humans to varying extent see the natural world, and each other, as exploitable and expendable. Therefore, to avert crisis we must change how we perceive and interact with each other and nature. This is where indigenous and alternative ontological perspectives of the human-nature relation offer us a potential way out of this intractable quandary; but which site or group of people is most appropriate?

Arctic exceptionalism

No doubt there are many suitable populations and environments in which to study the sociological effects of, and possibilities of response to, climate change. However, the Canadian Arctic in particular stands out as an exceptional site to study the relationship between politics, economics, the role of indigenous communities and the environment. This site is extraordinary because of the region's unique climate and hydrological processes. Water in the form of ice sustains the

delicate ecosystem of the Arctic, through the formation of sea ice, which Arctic biota depend upon, through glaciers, which feed its adjacent water systems and through permafrost, which supports water tables and reduces the process of sedimentation of lakes and rivers (Bates et al. 2008; Downing and Cuerrier 2011). Thus, the purpose of this thesis is to examine how capitalism, colonialism intersect in the Canadian Arctic and the ramifications of climate change in the Arctic with respect to its Inuit communities. Furthermore, is the capitalist ontology ecologically sustainable? And if not, are there any potential alternatives that may steer the planet towards a more sustainable course?

One of the main reasons why the Arctic was selected is because the region offers us a glimpse of the planet's future should we fail to curb our greenhouse gas emissions adequately. The Arctic is 'expected to experience some of the earliest and most profound climate-induced changes, largely because of their large cryospheric² components that also dominate their hydrological processes and water resources' (Bates et al. 2008, 106). Thus, water, or at least the form it takes, is a crucial component of how well the Arctic ecosystem functions. However, due to ecological rifts associated with centuries of predominantly Euro-American industrial activity, the stability of the region is already unravelling (Medalye and Foster 2012). The region is undergoing radical changes that are having a significant impact on Inuit and the ecosystem, which have implications for the rest of the globe. In this sense the Arctic and the lives of Inuit function as a barometer for the overall health of the planet: if they are struggling, so too will we all.

² The cryosphere consists of the segments of the earth where water exists in its solid form, such as ice, snow, and the permafrost (Marshall 2012).

Consequently, the climatic changes the Arctic is experiencing are creating new opportunities for economic activity. The form water takes is crucial in determining whether or not a region is viable for the purposes of maritime transportation or resource extraction, among other purposes. In that regard, the Arctic is one location where we can observe how both capital and capitalist states are reacting to opportunities presented by these changes in climatic conditions, namely the melting of sea ice. Rather than presenting barriers to the accumulation of wealth, the geophysical transformations caused by climate change are opening new spaces.

Lastly, in the search of a viable, alternative perspective to aid us in the task of mitigating climate change, Inuit offer us insights into the means of pursuing an alternative course. Firstly, indigenous communities must be heeded to, as they have historically contributed the least to climate change, yet they are forced to endure some of the worst effects of the phenomenon (Downing and Cuerrier 2011). More pertinently for this thesis, Inuit indigenous knowledge offers us insights into alternative ways to view (and enact) the human-environment relation. Inuit *Qaujimajatuqangit*, or Inuit traditional knowledge, generally refuses to take concepts in isolation, but rather incorporates values and principles together as a holistic practice and philosophy (Wenzel 2004). By recognising that the economy is intrinsically connected to the environment, as well as other factors of life, it provides us with the means of conceptualising how we can better organise ourselves and our communities towards a more sustainable course.

This thesis will illustrate how climate change is not just a problem of capitalism, but one of ontology, that how we relate to the environment is problematic and ultimately unsustainable. I will employ a Marxist theoretical framework in order to critique capitalism before delving into an exploration of the interdependent nature of water with humanity. I will then explore the topic of climate change in the Arctic and how it is affecting Inuit, as it offers us not only glimpses of future possibilities for the rest of humanity, but it is a site in which we may embrace a sustainable and indigenous ontological framework which may aid us in countering the more egregious aspects of our current economic paradigm.

Thesis Outline

Chapter Two serves as the theoretical foundation of the thesis. It is grounded in Marxist economic and ecological theory, covering the concepts of primitive accumulation, accumulation by dispossession, metabolic rifts, ecological imperialism, enclosure and the commons. The chapter introduces the logic of separation that informs the capitalist mode of production. The chapter concludes with how the capitalist mode of production is ecologically and socially destructive and is countered by the drive to protect communities and the environment.

Chapter Three builds on the theoretical concepts of the prior chapter in its exploration of the ubiquity and interconnectedness of water. The chapter describes the structure and function of water as it relates to the geophysics, ecology, and biochemical processes of the planet, demonstrating the centrality of water to the

biosphere. Furthermore, the chapter will explore the centrality of the substance to the origins and expansion of capitalism and colonialism, illustrating not only our dependence on nature but also the deleterious effect humanity can have on it, such as anthropogenic climate change.

Chapter Four explores the unique history of capitalism and colonialism in the context of Inuit and the Canadian Arctic. The development of metabolic rifts after Inuit are directed towards a capitalist mode of production by *qallunaat* will be discussed. The chapter will also illustrate how capitalism and colonialism developed in the region and how the role of water and ice impacted this process. The unique qualities of the ecosystem will be addressed in its role of maintaining indigenous demographic dominance over the region, which consequently bolstered the cause for greater indigenous autonomy.

Lastly, Chapter Five will examine how climate change affects both the Arctic ecosystem and Inuit communities. The double movement of the Canadian Arctic will be explored, which centres around the drive for capitalist accumulation on the one hand and the renewal of indigenous ontology and the strengthening of Inuit autonomy on the other.

Chapter Two: Capitalism and Socioecological

Degradation

Occasionally, the impact industrial activity has on our natural world³ becomes impossible to ignore, even to those residing in the most urbanised of environments. Perhaps the most striking example would be episodes of thick smog that blanket such cities such as Delhi or Beijing, affording people the opportunity to reflect on the ramifications of industrial activity on the environment. While the effect of human activity on nature may be more apparent to contemporary observers, it is still rare in Western society for people to articulate how politics, economics and the environment are constellated at a conceptual level, especially as it relates to climate change. The goals of this chapter are to demonstrate the linkages between the capitalist economy and the environment at a theoretical level in order to better understand their relationship, to point to the integral links between capitalism and colonialism and to introduce Polanyi's ([1944] 2001) double movement as an entry point for identifying counterforces to capitalism's advance.

This chapter will outline a Marxist analysis to better elucidate the economic and political forces at play to show that the nature of capital is constitutively at odds with both social relations and the environment. Not only does capitalism disrupt prior social arrangements, it also devastates ecosystems, with perhaps the most

³ When utilising the term 'nature' or 'natural', I acknowledge that the simple binary that distinguishes humanity from the rest of the biological world is problematic and in fact part of the problem I am investigating. Humans are fundamentally a part of the organic plexus that constitutes the living earth.

consequential manifestation being climate change. To accomplish this task, a number of concepts will be explored in detail, including: how primitive accumulation affects the relationship between humans and nature, enclosure and the commons, and metabolic rifts and how colonialism and the capitalist mode of production catalyse them. Next, the chapter will then explore the relationship between capitalism and colonialism and how both are informed by an ontology of separation. Finally, the end of the chapter will focus on how capitalism is countered by civic resistance through Polanyi's ([1944] 2001) double movement.

Primitive Accumulation

In order to understand how capitalism is intrinsically connected to climate change, a materialist perspective is useful, in particular the concept of primitive accumulation. The term depicts the process of the accumulation of wealth through the seizure of land at the expense of those living on it, subsequently creating a class of landless persons in want of work. Some might characterise this historical process as relatively peaceful and the natural result of innate differences between people. For example, over the course of time the more assiduous and talented worker gradually amassed greater concentrations of wealth by sheer merit whereas the indolent spendthrift squandered what little wealth they might have had, which resulted in the evolution of an impoverished class of wage-labourers (Marx [1867] 1976). Thus, according to that logic, the unequal distribution of wealth is a consequence of individual character rather than systemic processes.

However, Marx ([1867] 1976) took issue with what he described as the simplistic and naive explanation for the observable economic inequality of his era. The 'nursery tale,' as Marx ([1867] 1976) called it, obfuscated the political and economic reality of a period that consisted of 'conquest, enslavement, robbery, [and] murder' (874). Rather than being a harmonious period of wealth transfer, Harvey (2005), in paraphrasing Marx, described primitive accumulation as a process that 'entailed taking land, say, enclosing it, and expelling a resident population to create a landless proletariat, and then releasing the land into the privatized mainstream of capital accumulation' (125). In doing so, the process satisfied the requirements of capital through two separate operations: the creation of a labour force dependent upon a wage system, and the freeing of land for the pursuit of profit in the form of surplus accumulation.

The myth of primitive accumulation as a peaceful and natural phenomenon suggests that the accumulation of wealth by some in society was an inevitable process, but such an assumption obscures the role of the state in the development of capitalism. Marx's ([1867] 1976) expansion on the theory of primitive accumulation relied on British and French historical accounts to describe the process of expropriation, which included the state-sanctioned expulsion of the resident peasants from the land they occupied as well as the subsequent legislative measures aimed against them. The landless peasants were antagonised, not only through their displacement, but also via the subsequent enforcement of laws passed that punished those who begged, stole, or wandered (Marx [1867] 1976). Marx ([1867] 1976) argued that the severity of the punishment of these nascent crimes

compelled the proletariat, the newly emerged class of landless peasants, to take up work offered by the owners of the means of production — the class that instigated the theft of their land as well as their expulsion — in order to sustain themselves. Accordingly, from this historical account, it becomes clear that primitive accumulation was a political as well as economic process that transformed the socioeconomic basis of the affected societies in question.

(Be)Labouring Metabolic Rift

Marx's theory of capital, especially as it concerns the concept of primitive accumulation, is important because it described a marked shift in how people related to the land, and arguably nature itself. Perhaps unbeknownst to some, Marx made explicit references to the interconnected relationship humans have with nature. Regardless of the mode of production, Marx maintained that human life is contingent on a fundamental relationship with nature (Engels and Marx 1988; Marx [1867] 1976). He described labour as 'the appropriation of nature for the satisfaction of human needs, the activity through which the metabolism between man⁴ and nature is mediated' (Engels and Marx 1988, 40). He contended that humans were not the sole creators of wealth, as they were heavily dependent on the provision of nature (Marx [1867] 1976), and referred to earth as the mother of

⁴It is acknowledged that the language Marx utilised in this text, and in others, is ostensibly sexist. By relying on the idea of nature as feminine, and men as active agents that subject the earth to their will, Marx conveys highly egregious and antiquated convictions that were typical of his time. For the sake of concision and continuity, such gendered references to 'man', 'men', or the use of masculine pronouns will be interpreted in universal terms to include the whole of humanity.

material wealth, implying an integral relationship between humanity and nature.

Marx ([1867] 1976) elaborated further on this point:

Labour is first of all, a process between man and nature, a process by which man, through his own actions, mediates, regulates and controls the metabolism between himself and nature. He confronts the materials of nature as a force of nature. He sets in motion the natural forces that belong to his own body, his arms, legs, head and hands, in order to appropriate the materials of nature in a form adapted to his own needs. Through this movement he acts upon external⁵ nature and changes it, and in this way he simultaneously changes his own nature. He develops the potentialities slumbering within nature, and subjects the play of its forces to his own sovereign power. (283)

Within this framework, labour is perceived as the mediating process between humans and nature. They use their own bodies, a product of nature, in order to metabolise natural matter into forms that suit their needs. Thus, according to Marx ([1867] 1976), regardless of the mode of production, humanity shares an infrangible relationship with nature.

Expanding further on the dynamics between nature and humanity, Marx ([1894] 1981) described social metabolism as the immanent metabolism between humanity and nature, regulated through social activity. Specifically, Marx describes the concept as “the complex, dynamic interchange between human beings and nature” of matter and energy, which [recognises] how both “nature-imposed conditions” and human actions transform this process’ (as quoted in Foster, York and Clark 2010, 75). In other words, the natural environment significantly informs the context in which human activity occurs, with ‘each mode of production [creating] a particular social metabolic order that determines the interchange

⁵ The idea of nature being external to humanity is being scrutinised by contemporary scholarship and indeed runs counter to the argument of this thesis.

between society and nature' (Foster, York and Clark 2010, 75). This implies that societies throughout the world relate to nature differently depending substantially on the prevailing socioeconomic paradigm.

The advent of capitalism not only had a profound effect on communities economically and psychosocially, it also engendered the creation of a new social metabolic order. This entailed not only the physical degradation of the environment, but also an ontological shift in regard to how humans related to the environment. Through the socioeconomic and political upheaval that typifies it, primitive accumulation had a dissolutive effect on the relation humans had with nature. Because large groups of people were removed from the land they once subsisted from, they could no longer sustain the same kind of agrarian lifestyle. If a worker no longer subsists off the earth, but is reliant upon wage earnings, they are further divorced from any affinity they might have felt for the former. Accordingly, new surroundings and circumstances also likely engendered new behaviours and attitudes from the populace as an imperative for those earning subsistence wages, while for others it stimulated the drive to accumulate wealth.

As the process of land enclosure started and land increasingly came under the control of bourgeois interests, the rural population was forced to migrate to larger towns and urban centres. This generated 'an irreparable rift in the interdependent process of social metabolism, a metabolism prescribed by the natural laws of life itself' (Marx [1894] 1981, 949). For Marx ([1894] 1981), this implied an unsustainable imbalance between human activity and nature under the influence of

capital. This separation, as Marx ([1894] 1981) described, resulted in the 'squandering of the vitality of the soil, which' was converted into exportable goods and 'carried by trade far beyond the bounds of a single country' (949). More specifically, the nutrients of the soil, rather than returning back to the earth, were converted into waste and deposited via waterways or landfills, which consequently caused an array of additional ecological problems. From this perspective, Marx ([1867] 1976) concluded that the capitalist means of production 'only develops the techniques and the degree of combination of the social process of production by simultaneously undermining the original sources of all wealth — the soil and the worker' (638).

Embedded in the separation that capital entails, hinted above, is the Marxist concept of the metabolic rift, the notion of a disruption in the social 'metabolic exchange between humanity and nature... that undermined the regenerative capacities of the ecosystem' (Foster, York and Clark 2010, 45-46). Marx owed inspiration for the idea of the metabolic rift to the work of Justus von Liebig, a prominent chemist of the nineteenth century. Von Liebig observed how the nitrogen cycle of soil was disrupted through industrial farming, as nutrients were removed as food from the countryside and converted into waste in urban centres (Foster, York and Clark 2010). Thus, the industrial agricultural innovation fuelled by capital changed the social metabolic ordering with nature in an unsustainable manner, consequently generating ecological crises (Foster, York and Clark 2010). In dealing with the ramifications of these crises, technological solutions were developed — not to restore metabolic rifts but to produce greater yields from exhausted soil

(Foster, York and Clark 2010). For example, nitrogen fertilisers were developed as a means of extending the life of the soil and preserving the industrial agricultural model that was rapidly expanding (Foster, York and Clark 2010). The use of fertilisers, in return, create algae plumes, causing eutrophication along waterways, which have a catastrophic effect on local wildlife (Ansari et al. 2011). Thus, rather than restore metabolic rifts, the focus on the continual pursuit of surplus generation at the expense of the environment engenders new ecological crises. So long as non-humans and the environment are perceived as obstacles or as objects that can be readily exploited, the economy will be structured in a manner that is ecologically destructive, even if that may cast serious doubt on the long-term viability of the current socioeconomic order.

Expropriating the Earth

The chief character of the capitalist mode of production is the perpetual drive for expansion. For growth to be stimulated, capital continuously needs to be reinvested, which often takes the form of new tools and factories, the acquisition of available land to accommodate industrial activity, and the availability of labour in order to produce surplus (Marx [1867] 1976). Its expansion can take on a number of different forms, such as the quotidian growth of markets. However, the most substantial and catastrophic means, as mentioned prior, is through the phenomena of primitive accumulation. As a function of the capitalist state, primitive accumulation is manifested through the loss of the commons, or what is generally entrusted to the community at large. Enclosure of the commons is regarded as its

marginalisation or theft. What is important about this concept is that thinking about enclosure permits one to theorise (about producing) effective alternatives to capitalism, something that will be discussed later. Sevilla-Buitrago (2015) defines enclosure as:

a spatial rationality that (1) sustains a movement of spatial abstraction and commodification by subsuming non-capitalist social [and environmental] spaces under the value practices of capital; (2) orchestrates the diverse spatialities involved in the dispossession of material and immaterial, social, cultural and affective commons; (3) articulates interventions in the spheres of production, social reproduction and social ordering through a strategic domination of space; and (4) functions across a range of different scales and time periods, adopting different forms under historically specific regulatory regimes. Enclosure constitutes a key step in the homogenization of space, ie the tendency to normalize space under a unitary political-economic rationale. (1001)

In other words, enclosure dismantles the commons and transforms space in order to serve capitalism. In doing so, it interferes in the economic and social reproductive cycles that operated previously. Sevilla-Buitrago (2015) argues that enclosure works in tandem with other regulatory and institutional infrastructure to assert a particular kind of 'social ordering' (1001), ranging from urban planning to the colonial theft of land.

Enclosure, or the loss of the commons, is an intrinsic structural component of capitalism, as the system is dependent on the generation of surplus acquired through the primitive accumulation of the commons (Sevilla-Buitrago 2015). Capitalism was consolidated through the loss of the commons historically and as Sevilla-Buitrago (2015) contends, enclosure is 'strategic to the consolidation and survival of capitalism' (1006). Additionally, while enclosure is predicated on the confiscation of resources, it also deprives individuals and communities of

‘autonomous capacities for self-valorization’ (Sevilla-Buitrago 2015, 1003). In other words, the loss of the commons does not just include material losses, but also the delegitimation of non-capitalist organisation. Enclosure thus serves as a ‘strategic goal’ (1004) of capital that alienates and displaces autonomous collectives that might potentially threaten capitalist social relations (Sevilla-Buitrago 2015). As the thesis will describe in Chapter Four and Five, the Arctic is exceptional on theoretical grounds because enclosure did not operate in the Canadian Arctic as it did in other regions of the world. However, the disappearance of ice via climate change functions as a loss of indigenous commons, because it effectively limits the autonomy of Inuit, in both the capacity to follow traditional activities as well as the choices they can make both economically and politically.

It is worth acknowledging that various forms of enclosure were executed prior to the ascendancy of capitalism; in fact, Marx ([1867] 1976) argued that the most notable instances of primitive accumulation occurred through the early process of colonisation, which greatly contributed to the emergence of capitalism. Such examples include the murder of indigenous people in addition to the theft of their valuables and natural resources that occurred in the Caribbean by Columbus, or the colonisation and enslavement of Africans by Europeans. Marx ([1867] 1976) elaborated:

The discovery of gold and silver in America, the expiration, enslavement and entombment in mines of the indigenous population of that continent, the beginnings of the conquest and plunder of India, and the conversion of Africa into a preserve for the commercial hunting of blackskins⁶, are all things which characterize the dawn of the era of

⁶ It is acknowledged that the use of this word by Marx is racist and problematic. Such language is not reflective of my views; I do not condone its use.

capitalist production. These idyllic proceedings are the chief moments of primitive accumulation The different moments of primitive accumulation can be assigned in particular to Spain, Portugal, Holland, France, and England, in more or less chronological order. These moments are systematically combined together at the end of the seventeenth century in England; the combination embraces the colonies, the national debt, the modern tax system, and the system of protection. (915)

In this text, Marx ([1867] 1976) argued that the initial impulses of colonialism were momentous acts of primitive accumulation, characterised by outright theft, enslavement and genocide, which enabled the emergence of the capitalist mode of production. These 'chief' moments exhibit the classic features of primitive accumulation described earlier in this thesis, as they involved the seizure of land and the violent removal or displacement of populations. Accordingly, they helped form the prehistory of capital and worked in lockstep with other concurrent processes that included the exclusion of 'co-operation, the division of labour within each separate process of production, the social control and regulation of the forces of nature, and the free development of the productive forces of society' (Marx [1867] 1976, 927). Thus, Marx theorised that there was an integral relationship between the advent of capitalism and colonialism, which through divisive processes modified the character of relationships between people as well as how society related to nature.

A crucial feature of the enclosure of the commons is that it engenders environmental destruction, accelerated considerably through the mechanisms that have catapulted the growth of capitalism. That is not to claim that the degradation of the biosphere has not occurred through prior modes of production. Indeed, deforestation around the world can be traced as early as the neolithic period

through the use of fire as a technology (Williams 2003). What markedly differentiates the social metabolism of capitalism from prior modes of production is its focus on exchange value. According to Marx, prior modes of production were orientated on the production of goods for their use-value, or the value of an object for its utilitarian or aesthetic purpose (Foster, York and Clark 2010). However, capital inverted the focus of the economy to that of exchange values, or the monetary value of a commodity through its trade (Foster, York and Clark 2010).

Consequently:

the pursuit of exchange value became the sole object of production. Capitalism created open, endless dissatisfaction, since the pursuit of exchange value as opposed to use value had no natural or social point of satisfaction, but led only to a drive/craving for more. Thus a treadmill of production was generated in which production appeared “as the aim of mankind and wealth as the aim of production”... In the alienated, upside-down world of capital, the dominant necessity driving all others was the unquenchable desire for abstract commodity wealth, which was nothing but the limitless desire for more commodity production. This meant that the original conditions of production — land and even human beings — became mere accessories to production. Generalized commodity production disrupted all original human-natural relations, all relations of sustainability and community. (Foster, York and Clark 2010, 281-282)

Thus, by reorientating the focus of production to exchange values, rather than use values, capital catalysed its endless expansion, amplifying the consumption of the natural environment. For Foster, York and Clark (2010), ‘the social metabolic order of capitalism is inherently anti-ecological, since it systematically subordinates nature in its pursuit of endless accumulation and production on ever-larger scales’ (74). If the profit motive is paramount, it supersedes alternative societal values through enclosure and maintains the perspective that nature is to be an object of exploitation.

Capitalism, Metabolic Rifts and Capitalist Solutions

Climate change is the manifestation of metabolic rifts catalysed primarily (although not exclusively) through the release of carbon emissions from coal, natural gas and oil. Fossil fuel combustion and related industrial processes account for approximately 78% of total greenhouse gas emissions from 1970 to 2010 (Edenhofer et al. 2014). Accordingly, climate change is an emergent environmental crisis largely anthropogenic in origin. Further, the phenomenon is clearly attributable to the capitalist mode of production on account of its historical reliance on hydrocarbons (Foster, York and Clark 2010). Thus, the global economy and climate change are both intimately connected with the fossil fuel industry and the consumption of its products.

It is important to note that the emergence of the fossil fuel industry occurred in tandem with the rapid expansion of capitalism. As capitalist development began to accelerate in Britain, demand for novel sources of power generation increased (Foster, York and Clark 2010, 134). Greater sources of power were required in order to maximise production processes and the extraction of wealth. Prior modes of production were primarily limited by what Herman Daly coined as the “solar-income constraint” (135), the energy provided by the sun that may be readily utilised (as quoted in Foster, York and Clark 2010). However, the adoption of fossil fuels greatly facilitated the expansion of capitalism, and as fossil fuels enabled this growth, so too did capital develop a robust infrastructure around their extraction and use (Foster, York and Clark 2010). As carbon fuelled the growth of capital,

'capitalist production... [broke] "the solar-income budget constraint, and this has thrown [society] out of ecological equilibrium with the rest of the biosphere"' (as quoted in Foster, York and Clark 2010, 135). The extraction of fossil fuels, the maintenance of its infrastructure network, and the carbon that is released into the atmosphere as a result of its use, all constitute considerable ecological destruction at both local and global levels. Thus, like the metabolic rift of the soil described by Marx, capital generates ecological rifts, the most pertinent relating to carbon, one that expands throughout the atmosphere with 'no natural confinement or pressure to stop the ruin of ecosystems, short of global collapse' (Foster, York and Clark 2010, 136).

In response to the global ecological crisis, political and economic actors throughout the world contend that climate change can be mitigated through either political regulation or market exchanges. In other words, market incentives or disincentives will steer capitalist development towards more sustainable processes in the hope that technological development will provide solutions to the planetary crisis. However, even if the worse effects of climate change are avoided through the use of carbon-neutral technologies, capital remains a threat to the biosphere. This is because of the Jevon's Paradox, which is described as the empirical observation that as technological innovations develop in order to reduce inefficiencies, the use of natural resources increases, not diminishes (Foster, York and Clark 2010). Rather than the development of more sustainable means of production, technological development, under capitalist relations, is used in order to secure a greater profit margin (Foster, York and Clark 2010). As a capitalist society primarily values the

state of the economy over other concerns, the expansion of capitalism engenders the further exploitation of an already anaemic biosphere. If technological solutions to climate change are somehow pursued, new ecological rifts will likely result. For example, some scientists have mused about 'geoengineering' via aerosolising sulphur into the atmosphere in order to cool the planet, entailing likely unforeseen consequences (Brovkin et al. 2009).

Ecological Imperialism

Climate change is a phenomenon that disproportionately affects certain communities more than others. Climate change inequity, or the difference between contributing to climate change and enduring the worst of its effects, has been found to be determined significantly by the relative wealth of the nation (Althor, Watson and Fuller 2016). Althor, Watson and Fuller (2016) argue that '[c]ountries least vulnerable to the impacts of climate change were generally the highest [greenhouse gas] emitters, and conversely those most vulnerable to climate change were the least responsible for its genesis' (3). Thus, the variant effects climate change has on different groups of people directly mirrors the inequities engendered by colonialism and the capitalist mode of production, with individuals, communities and nations with a lesser share of global wealth therefore more likely to find it difficult to mitigate local manifestations of climate change.

The disproportionality that is characteristic of climate change and capitalism is arguably a form of ecological imperialism. Ecological imperialism, as argued by

Foster, York and Clark (2010), explicates how the expansion of capitalism is dependent not only on the exploitation of wage-labourers, but on nature as well. Essentially, it describes how European colonial powers were involved in the 'appropriation of land, resources, and labor in lesser-developed⁷ countries, increasing the environmental degradation in the latter for the benefit of the former' (Foster, York and Clark 2010, 347). In the case of climate change, fossil fuels have long been utilised by colonial states to drive their economy and expand into other territories. The consequent materialisation of global warming is a manifestation of the disruption of the planetary carbon cycle that is largely attributed to colonial and capitalist expansion, yet people around the world must bear the costs, with some of the most marginalised bearing some of the worst effects, such as communities that occupy low-lying Pacific Islands or the Arctic. In a sense, the ecological ramifications have been largely dispersed whereas the economic benefits have been concentrated among those who are predominantly responsible for the crisis and thus have benefited from a form of ecological imperialism.

A remarkable example of ecological imperialism includes the historical trade in guano. Because of the destructive qualities of industrial agriculture, as mentioned previously, capitalist states were in need of viable nitrogen inputs in order to prolong the life of the soil that was tilled (Foster, York and Clark 2010). Guano, a natural fertiliser primarily from sea birds, served as a suitable solution to the then

⁷ Use of the phrase 'lesser-developed' is problematic as it connotes a racist form of categorisation of people that is rooted colonial and capitalist history, implying progression within the capitalist mode of production and leaving little room for alternative trajectories.

growing ecological crisis. The guano trade expanded the capitalist ordering of social metabolism to include countries half-way around the world, such as Peru and Nauru. Consequently, Peruvian stock piles of the substance dissipated, catalysing a war between Peru, Chile and Bolivia (Foster, York and Clark 2010). Foster, York and Clark (2010) used Peru as a case study in how:

the development of ecological imperialism necessitated not only an enormous net flow of ecological resources from South to North, but also gave added impetus to the importation of foreign labor, particularly coolie labor from China, under conditions that, as Marx said, were 'worse than slavery.' Within the world system of capital, the robbing of the soil in Europe necessitated the importation of guano from Peru, and in the process fed into the robbing of human labor on a truly global scale. (370-371)

Thus, Foster, York and Clark (2010) help illustrate the complicated web of relationships between imperial and colonised nations, bourgeois and proletariat, and between humans and the environment, that emerge through the forces of capital. Here, because of the ecological rift that manifests as a result of capitalist economic development, these imperial countries were compelled to expand the market for the guano of other, less powerful, nations and generate new rifts, which entailed the further engendering of capitalist relations in the form of importing labour. This is one example in a series of feedback loops of one crisis after another, ecological and social, informing and reinforcing each other (De Angelis 2004). Accordingly, Foster, York and Clark (2010) argue that the solution to preventing an ecological or societal crisis is not strictly economic:

Ecological imperialism — the growth of the center of the system at unsustainable rates, through the more thoroughgoing ecological degradation of the periphery - is now generating a planetary-scale set of ecological contractions, imperiling the entire biosphere as we know it. Only a social solution that addresses the rift in ecological relations on a planetary scale and their relation to global structures of imperialism and

inequality offers any genuine hope that these contradictions can be transcended. (372)

To adequately address the growing catastrophic rifts that capitalism engenders, it is argued that a sociopolitical solution is required (De Angelis 2004; Foster, York and Clark 2010). However, in order to settle on a suitable solution to the growing crisis, a more nuanced understanding of the logic of capitalism is necessary.

Capitalist Ontology

Capitalist ontology is informed by an impulse for separation, or the Cartesian notion of a division between humanity and nature, with humans assuming a position of dominance (Moore 2017). The logic of separation provides the ontological foundations for capitalism to thrive, even at the expense of the biosphere. This is because it creates the space for certain groups of people or parts of the environment to be exploitable (Hage 2017). Indeed, some prior modes of production were predicated on a degree of exploitation and mastery over nature; however, capitalism is exceptional. That is because capitalism reorientates social and environmental relations to facilitate the extraction of wealth at the expense of both communities and the commons. Rather than focusing on the value of materials for the benefit of society, capitalism inverts this notion by focusing on how society can be reorganised to better service the accumulation of capital. Through this lens, the planet is regarded merely for its utilitarian value in providing opportunities for capital accumulation and as such is often treated as a receptacle for industrial processes and pollution.

According to De Angelis (2004), the dividing impulse of capitalism is most pronounced in primitive accumulation's logic of separation between workers and the means of production (De Angelis 2004). The separation, at least initially, is characterised by acts of violence as primitive accumulation is imposed extra-economically by state or bourgeois interests (De Angelis 2004, 67). Furthermore, as Marx declared, "once developed historically, capital itself creates the conditions of its existence (not as conditions for its arising, but as results of its being)", and therefore it drives to reproduce (at increasing scale) the separation between means of production and producers' (as quoted in De Angelis 2004, 66). In other words, after episodic periods of violent extraction, capitalism becomes normalised as a natural part of society, as both social relations and material conditions are transformed in order to facilitate the capitalist mode of production. Furthermore, for capital to function it increasingly requires external inputs, greatly contributing to the drive for capitalist and colonial expansion, which often manifests as ecological imperialism.

It is important to clarify that primitive accumulation should not strictly be viewed genealogically. According to Harvey (2005), 'Marx's general theory of capital accumulation is constructed under assumptions that broadly match those of classical political economy,' in which "primitive" or "original accumulation has already occurred and accumulation now proceeds as expanded reproduction" (as quoted in Harvey 2005, 121). While Harvey (2005) praises Marx for his insight into the origins of capitalism, he suggests that the concept of primitive accumulation should not be relegated to a particular historical stage, but be interpreted as an

ongoing process, an observation also made by a number of other theorists, including Sevilla-Buitrago (2015), Makki (2014) and Borras et al. (2012). In order to communicate the difference in meaning, Harvey developed the term 'accumulation by dispossession' (122), which entails not just the original moment of land expropriation⁸, but also new mechanisms of 'enclosing the commons' (124), such as intellectual property rights, the privatization of genetic material, and the 'wholesale commodification of nature in all its forms' (Harvey 2005, 124). By discerning accumulation by dispossession as an underlying logic, a more robust understanding of its role in capitalist growth and movement is possible; it not only served as impetus for the initial theft and slaughter of peasant and indigenous communities around the globe, it also continues to impact subsequent social relations and the continual impulse towards dispossession.

Because accumulation by dispossession functions by the ongoing seizures of various forms of the commons, capitalism is not a self-sustaining system. Enclosure operates in tandem with the capitalist prioritisation of exchange values, meaning that the capitalist mode of production is predicated on the endless confiscation of public assets and resources to the point of collapse. Harvey (2005) argues that 'the general thrust of any capitalistic logic of power is... that territories should be... continuously opened up' (118). Here, capital is presented as perpetually in need of new inputs in the form of land, genomes, cyberspace, outer space, or other potential spaces of capitalist exploitation, lest the system stagnate. Thus, according

⁸ The phrase also circumvents the more problematic 'primitive' term.

to Harvey (2005) it is contended that capital is perpetually dependent on external input in order to properly function. Harvey (2005) continues:

Contradictions arise, however, within the dynamics of spatio-temporal transformations. If the surpluses of capital and of labour power exist within a given territory (such as a nation-state or a region) and cannot be absorbed internally (either by geographical adjustments or social expenditures) then they must be sent elsewhere to find a fresh terrain for their profitable realization if they are not to be devalued. (100)

Therefore, as Harvey (2005) suggests, capitalist expansion, which was historically expressed as colonialism, was a logical outcome because of the intrinsic contradictions of capitalism, notably due to the phenomena of overaccumulation (the limitation of suitable avenues for capital investment in a given region). Thus, in order to stave off economic recessions, continued economic growth, both within capitalist countries and beyond, is necessary. Furthermore, because capitalism is not self-sustainable economically, it continually exploits new opportunities for expansion, whether it be through the process of neoliberalism or into new frontiers, such as the Arctic.

Hence, capitalism, colonial expansion and environmental degradation are intertwined. The process of capitalist accumulation, Harvey (2005) argues, is due to 'conditions of uneven geographical development' (101) which provided the appropriate conditions for 'spatio-temporal fixes' (117) to at least temporarily alleviate the crisis of overaccumulation that afflicts affected capitalist states. Because of the economic differences between polities around the world, Harvey (2005) contends that these 'fixes' temporarily relieve intermittent crises in capitalism within Europe as they allow capital to flow to less wealthy nations in order to maximise the potential returns in profit. Thus, accumulation by

dispossession functions as a desirable enterprise because it provides economic palliation for the metropole in addition to serving as instruments of enrichment for investors.

Thus, capitalism is not only driven by a logic of separation, socially and environmentally, but by a colonial logic as well, one that largely determines the shape of economic, social, political and environmental processes. Accordingly, De Angelis (2004) argues that no society on earth actually operates under *capitalism*, per se. Rather, people live in 'life-worlds' that frequently overlap with each other, such as the workplace, the family, the suburb, the internet, or what De Angelis (2004) would depict as 'the realm of significant relations to objects and to other people' (67). Seen in this way, *capital* operates not as a totalised system, but more precisely as a colonising force, that:

attempts to create life-worlds in its own image (such as the factory) or to colonise existing ones to put them to work for its priorities and drives. And it has done this since the beginning of its history to different degrees, and, at any given historical moment, different life-worlds are subject to different degrees of colonisation. Capital will not stop in its attempt to colonise until either some *other* social force will make it stop – such as, for example, socialised humanity – or until it has colonised all of life. So, paradoxically, the true realisation of *capitalism* coincides with the end of life (and, therefore, of any alternative to capitalism!). (De Angelis 2004, 67)

Accordingly, no full realisation of capitalism can be accomplished without the extinction of life, let alone society, for the unvarnished pursuit of surplus lends to annihilation. That is because capital reorientates life-worlds to suit its own purposes, which are not socially or ecologically sustainable. The logic of capital compels the manager to reduce input expenditures, such as labour, or more environmentally-sound practices, in order to maximise the potential for surplus

generation. It is only through the defence of the commons — not the pursuit of wealth — that social or ecological protections are demanded and secured. Thus, as De Angelis (2004) argues, enclosure acts as a means of colonising life-worlds to the detriment of both society and the biosphere in order to perpetuate the expansion of capital.

Capital and Climate

In many ways, climate change functions both as a loss of the commons and the end point of capitalist accumulation as biodiversity and inhabitable environments precipitously diminish. While some humans may still be in denial⁹ regarding their impact on the planet, their beliefs cannot obfuscate the empirical reality of climate change. Indeed, the earth's atmosphere has undergone considerable changes over the course of its existence. Earth's primordial atmosphere was originally devoid of oxygen, but due to the evolution of cyanobacteria and other subsequent organic processes, free oxygen was rapidly and permanently introduced which likely brought about profound change to both the climate (through the alteration of nutrient and carbon cycles) and life on the planet (Lyons, Reinhard, and Planavsky 2014). With some moderate cyclical changes, humans enjoyed a relatively stable atmosphere and climate over the course of thousands of years. However, with the advent of the industrial revolution, earth's atmospheric composition and global

⁹ Many who are beholden to the current socioeconomic paradigm conform to a form of confirmation bias, valuing science that furthers the reach of capital while ignoring science that focuses on the ecological rifts it engenders (Tranter and Booth 2015).

climate has significantly changed, a fact that can be readily observed through a wide variety of scientific means.

A major reason for this shift relates to the energy sources harnessed for human use, most notably in the form of hydrocarbons. Humans have released carbon dioxide and other greenhouse gases into the atmosphere long before the advent of capitalism. Wood burning, for example, served as the primary means of human energy production for millennia. Yet, as societies adapted technologically, more energy-intensive processes, such as smelting, were developed, imposing an ecological burden on the planet in the form of extensive deforestation and carbon emissions (Foster, York and Clark 2010). Because firewood became increasingly scarce for capital-intensive centres, capitalists addressed the crisis by developing a new fuel source, hydrocarbons (Foster, York and Clark 2010). Accordingly, the logistical challenges and metabolic rifts primarily engendered through prior modes of production were palliated through the development and expansion of the coal and petroleum industry, which in turn exacerbated the rifts to include oil spills and the massive release of greenhouse gases into the atmosphere (Foster, York and Clark 2010). Thus, human activity, regardless of the mode of production, has an impact on the environment. However, because the capitalist mode of production frames nature as exploitable, harbours the capacity for its destruction, and because of its massive global success, it poses a significant risk to both humanity and other organisms on this planet. In short, capitalism imperils life on this planet because it overwhelmingly contributes to climate change, which is orientated by a fundamental disconnection with nature.

The Double Movement

If capital is a totalising, ruinous force, how might communities be able to meaningfully resist? De Angelis (2004) argues that meaningful resistance is derived by the forces that oppose acts of accumulation by dispossession:

On one side, there is the historical movement of the market, a movement that has no inherent limits and that therefore threatens society's very existence. On the other, there is society's propensity to defend itself, and therefore to create institutions for its own protection. In Polanyi's terms, the continuous element of Marx's primitive accumulation could be identified as those social processes or sets of strategies aimed at dismantling those institutions that protect society from the market. The crucial element of continuity in the reformulation of Marx's theory of primitive accumulation arises, therefore, once we acknowledge the *other* movement of society. (69)

According to Polanyi ([1944] 2001), market societies are characterised by a tension, or 'double movement' (136), that propels society in one direction or another according to two opposing principles, each 'setting itself specific institutional aims, having the support of definite social forces and using its own distinctive methods' (138). In one direction, proponents of economic liberalism seek 'the establishment of a self-regulating market, relying on the support of the trading classes, and using largely laissez-faire and free trade as its methods' (Polanyi [1944] 2001, 138). In the other direction is:

the principle of social protection aiming at the conservation of man and nature as well as productive organization, relying on the varying support of those most immediately affected by the deleterious action of the market— primarily, but not exclusively, the working and the landed classes— and using protective legislation, restrictive associations, and other instruments of intervention as its methods. (Polanyi [1944] 2001, 138-139)

For economic liberals, the market is of the utmost importance and society must be subordinated to its logic (Block 2001). For socioecological forces, or those opposed

to economic liberalism, markets are to serve society, and not the other way around (Block 2001). Integral to these conflicting ideas are the concepts of embeddedness and disembedding as it relates to markets and society. According to Polanyi, 'the term "embeddedness" expresses the idea that the economy is not autonomous... but subordinated to politics, religion, and social relations' (Block 2001, xxiii-xxiv). In other words, markets function to serve the interests of society and thus are subjected to regulations, societal values and the rule of law. Disembedding, on the other hand, refers to the attempts at eliminating regulations, tariffs, subsidies and other means of societal control over the market and thus 'subordinating society to the logic of the market' (Block 2001, xxiv).

According to Polanyi ([1944] 2001), the realisation of classical economic theory, of the full application of laissez faire economics, was 'utopian' (148). He argued that it was a fantasy that could never be achieved because society would never tolerate it (Polanyi [1944] 2001). As a response to the egregious manifestations of economic liberalism, he argued that society responds by instituting self-protective mechanisms that conserved both human society as well as the natural world (Polanyi [1944] 2001, 138). That was because in its extreme, if left unchecked, disembedding the economy would thrust society and the environment into ruin:

To allow the market mechanism to be sole director of the fate of human beings and their natural environment indeed ... would result in the demolition of society... Robbed of the protective covering of cultural institutions, human beings would perish from the effects of social exposure; they would die as the victims of acute social dislocation through vice, perversion, crime, and starvation. Nature would be reduced to its elements, neighborhoods and landscapes defiled, rivers polluted, military safety jeopardized, the power to produce food and raw materials destroyed. (Polanyi [1944] 2001, 76)

Thus, the double movement is characterised by a tension between an extractive and exploitative inclination on the one hand, and the drive to protect society on the other hand. According to Block (2001), 'disembedding the market is similar to stretching a giant elastic band' (xxv). Any effort to subordinate society to the markets increases the tension level, resulting either in the economy reverting to a more embedded state or the band snaps through social and ecological rupture (Block 2001). Thus, the basis of power that resides with the socioecological forces is founded on the fundamental need to survive, a need which is threatened by consequences of economic liberalism.

Conclusion

To better understand the threads that connect the current social, economic and political paradigm as it relates to climate change, a Marxist analysis is useful, in particular as it relates to the role of accumulation by dispossession. Because of the fundamental means in which capital operates, humans have been divorced not only from the means of production, but also from their intimate connection to the land. In this chapter I have outlined the ramifications of this separation in the production of metabolic rifts, especially as they relate to the current climate change crisis.

A critical driver of these phenomena is the economic growth imperative of capitalism. By citing De Angelis (2004), I connected how the logic of capital is driven by the necessity to separate — in particular land from workers, and humanity from nature — and how the necessity and priority of accumulation

greatly influenced the development of European colonialism and ecological imperialism. Harvey's (2005) account of accumulation by dispossession was utilised in order to help explain how capitalism and colonialism continue to be connected, particularly how 'spatio-temporal fixes' (117) accounted for the expansionary drive of capital, which temporarily ameliorate the recurrent crisis of overaccumulation. Lastly, I argued that while capitalism exists as a coercive, ubiquitous force, it can be countered by sustained resistance. Here, Polanyi's double movement provides a conceptual framework for reminding us that the economic forces driving capitalism and the disembedding of the economy can be countered by political forces to re-embed the economy in the service of social and environmental survival. However, as I will later argue, in the face of climate change it will not be sufficient to simply reform capital, but an ontological shift towards a more indigenous worldview in how we relate to nature and others is vital in order to develop a more sustainable alternative economic paradigm. The following chapter will take these insights forward in an exploration of how the ontology of separation is connected to humanity's relationship with water, how water functions in light of capitalist and colonial development, and how water is connected to climate change.

Chapter Three: the Centrality of Water

Of all the daily aspects of one's life that one may take for granted, water is arguably the most vital. At home, it is ingested regularly, used to cook and clean, to transport waste, and to hydrate gardens. Beyond its domestic use, it is utilised in a wide array of private and public sectors, ranging from transportation to agriculture, manufacturing processes to the cooling of molten nuclear fuel. The purpose of this chapter is to explore the relation of water to organic life, to humans, to capitalist economies and finally to global warming. I will argue that because of water's unique molecular properties, it has been instrumental in providing the foundation for life, shaping the planet, influencing the development of societies, and catalysing the expansion of capital and colonialism. Additionally, water, through the dynamics inherent to the social metabolism of capital (the exchange between nature and humans dependent on the mode of production) increasingly threatens communities around the earth through the effects of climate change. This is largely due to the fact that as the planet warms through the release of greenhouse gases, the hydrological cycle will increasingly produce episodes of excess or scarcity in the form of severe floods, droughts and other climate-related phenomena that will negatively impact both human society and the rest of the biosphere. This chapter begins with an examination of the relation between water, nature and humanity. It will then proceed to an interrogation of the relation between water and colonialism and capitalism, finally concluding with a brief exploration of climate change and water.

Water and Organic Life

For a seemingly simple compound, water carries monumental significance, from the atomic to planetary level. Water has unique properties that help structure much of the world, natural or otherwise, that one may observe today. Atomically, water is shaped as a tetrahedron, and because of its electromagnetic symmetry, its structure is ideal for attracting other water molecules infinitely, providing the circumstances in which it can form such shapes as ice crystals or snow flakes (Sussman 2012). Interestingly, the crystal structure of ice is arranged to have more widely-spaced lattices than its liquid form, giving ice the capacity to float above water (Sussman 2012). Consequently, being 'on the surface, ice protects and insulates life forms underneath it' in addition to insulating 'water from increasing vaporization by the sun's heat' (Sussman 2012, 131). Thus, the atomic and molecular properties of water have far-reaching ramifications for macro processes and structures, water, in the form of ice, provides habitat for organisms and moderates how solar radiation impacts a region.

Water, in conjunction with other substances, helps form our bodily organs and vessels, saturating our body just as much as it saturates our world. The substance constitutes approximately sixty to eighty percent of the human body and it is channeled through it by vessels that, in a way, resemble rivers (Sussman 2012). Molecularly, water is structured by a Y-junction, Y-junctions in turn are demonstrated throughout the planet, from capillaries and blood vessels in our bodies, bronchi in our lungs, to trees, honeycombs, ice crystals, bubbles, rivers and

delta systems (Sussman 2012). Accordingly, these structures are indicators of a connection, or a relationship, not only between water molecules but between nearly every geological feature or organism it touches (Sussman 2012).

While the name 'Earth' may depict the planet as a sphere of rock, for organisms dwelling closer to its surface, such a perception betrays the significance of water in the biosphere. Water is 'involved in all components of the climate system (atmosphere, hydrosphere, cryosphere, land surface and biosphere)' (Bates, et al. 2008, 15). Further, 'water is the only substance on Earth that is found naturally in all three of its phases,' (1) which includes gas, liquid and solid states (Marshall 2012). Seventy percent of the Earth's surface consists of water, with oceans running at an average of four kilometres deep (Tvedt 2016). Five percent of the planet is covered by ice, and while the remaining twenty-five percent of surface is terrestrial, it contains an intricate system of rivers, lakes and massive aquifers (Tvedt 2016). Additionally, because of water's unique molecular qualities, and its considerable quantity on the planet, it serves as a major contributor in regulating global temperatures and wind currents (Tvedt 2016). Thus, for life within the biosphere, Earth is a water planet.

The Emergence of Hydraulic Civilisations

Of course, the relational quality of water is not limited to structure, but extends to encompass functional aspects as well. Water both sustains and connects the myriad life forms the planet harbours. Organic life has primarily evolved around the

hydrologic cycle in a variety of environments. Plants have evolved to become efficient in being able to extract water molecules from the environment, even in some of the most inhospitable of terrains. Animal life has co-evolved with plants and other organisms, orientating much of their existence around water sources and the life they provide. The terrestrial migration of herd animals, for example, is typically seasonal in nature, mobilising en masse to regions of abundance, both of plant life and freshwater. The Arctic ecosystem is dependent on geophysical and hydrological cycles that produce permafrost and sustain ice for extended periods of time out of the year (Bates et al. 2008). Humans have also, of course, historically organised their lives around water through foraging, hunting, the cultivation of plants, as conduits for transportation and as sites for the establishment of settlements. This section focuses on the role of water and the development of human civilisations, as well as an ontological shift towards the dominance of nature.

Suzuki (2007) illustrated the significance of natural watercourses in the emergence of human civilisation¹⁰. Mesopotamia, situated between the Tigris and Euphrates Rivers, is said to have been a crucible of early human civilisation due to a number of factors. Chadwick (2005) argues that climatic and ecological conditions, both related to the relative abundance or absence of freshwater, potentially contributed to the emergence of agriculture, which in turn led to the development of Mesopotamian civilisation. Thus, water arguably had a profound influence on the

¹⁰ It is acknowledged that the term 'civilisation' is influenced by Enlightenment notions that denigrate hunter-gather societies. Here, the term denotes any large scale society that involves extensive organisation and social stratification.

formation of early civilisation, resulting in some hunter-gatherer communities in the region building permanent settlements in order to cultivate subsistence crops and domesticate other animals. Because of an increasingly dry climate and a growing human population, these communities chose to settle in order to focus on cultivating certain subsistence plants and domesticated animals as a means of sustaining themselves (Chadwick 2005). Thus, the availability of water — or lack thereof — not only determined to a great extent the socioeconomic patterns of early human societies, it also played a role in the development of novel subsistence and societal strategies.

Coupled with the advent of these new methods, an ontological shift began to emerge. Chadwick (2005) argues that the emergence of agriculture was the main contributor to the modification of 'social relationships between [people], and how they related to the planet' (21). The reasons for this are due in part to the growing populations of settlements, which generated a variety of social niches that needed to be filled (Chadwick 2005). As populations benefited from surplus food stores, certain groups of people had the luxury to pursue non-subsistence related activities, with some groups gaining more social prominence than others while beginning a process of division in which certain forms of labour increasingly were separated from the natural environment (Chadwick 2005). A striking contributor to the phenomenon occurred through the emergence of so-called hydraulic civilisations (Redman 1978). These societies were based on extensive irrigation systems, which required intricate social organisation incorporating innovative technology, labour and trade in order to produce the necessary infrastructure of dykes and canals (Chadman 2005). Thus, as agricultural development increased the complexity of

societies, most notably through hierarchisation via the division of labour, an ontological shift began to take hold that positioned humans as the dominant species on the planet, which consequently engendered metabolic rifts as humans increasingly attempted to control nature¹¹.

The emergence of agriculture also facilitated the development of written texts, as they were necessary in order to better organise society, which provide substantial evidence for an ontological shift in not only the respective society's social relations but also their relationship with the planet. Rather than perceiving themselves as merely a constituent within the web of life, increasingly some envisioned themselves as being separate from nature, superior, or somehow exceptional. Near Eastern and Western mythology and religious literature are replete with examples of the idea of dominion over nature. For instance, in the *Epic of Gilgamesh*, the juxtaposition between civilisation and the wild is clearly depicted. Enkidu was created by the gods in response to the pleas of the citizenry of Uruk to temper the hubris of Gilgamesh, their ruler (Foster 2001). Enkidu was described as a man of the wild, as he acted like the herd animals he associated himself with as they dwelled at the local water hole (Foster 2001). Because of Enkidu's unmatched strength and his continual interference in the daily work of a local hunter, Shamhat, a priestess of Ishtar was summoned in order to tame and 'civilise' the wild man (Foster 2001;

¹¹ Animal domestication also likely played a role in the ontological shift that occurred among early societies. As humans began to domesticate both animals and plants, it is plausible that humans began to perceive themselves as dominant over other species, discerning them either as property or creatures to be stewarded (Hill 2013). As humans were increasingly involved in the manipulation of the life cycles of other species, their influence may have gradually altered the perception of their role in the world to that of guardians or masters.

Mitchell 2004). Through seven days and nights of sacred intercourse between the two, Enkidu made his transition from a humanoid barely distinguishable from the wild to a 'civilised' man (Foster 2001; Mitchell 2004). From this, a clear articulation of the division between nature and humans, or at least civilisation, is discernible, which suggests that the advent of agriculture and social stratification in Mesopotamia, brought about in part through water use changes, entailed a shift in how humans related to nature and one another.

Yet, despite the hubris of some early civilisations, they were not exempt from the gravitational pull of freshwater. Tvedt (2016), for example, highlighted the symbolic significance of the fountain in ancient urban settlements. For Tvedt (2016), they mark a particular triumph of civilisation over nature, as if to defy it by suggesting they can form townships in otherwise inhospitable land. Indeed, Tvedt (2016) reminded us that cities and societies cannot function without control of an adequate supply of water. Yet, simultaneously, the central role of the fountain casts a shadow on the assertion of dominance, or transcendence, by suggesting that like all other forms of life on this planet, humanity cannot sever itself from nature (Tvedt 2016).

Of Metabolic Rifts, Modes of Production and Water

Metabolic rifts, in one form or another, have developed regardless of the mode of production in question. Early humans and their ancestors, like all other species on this planet, impacted their respective ecosystems by virtue of their daily activities.

Very often that impact was low and was conducted, consciously or not, in a sustainable fashion. However, the change in human subsistence strategies through the development of agriculture was a significant milestone, leading to more pronounced examples of metabolic rifts. Newly emerging rifts took hold with the rise of dam and irrigation schemes, urbanisation, and the displacement of indigenous flora and fauna. This is not to suggest that hunter-gatherer societies had no considerable impact on the environment — fire had long been used as a tool to modify landscapes before the advent of agriculture (Williams 2003) — but socially stratified societies generally engaged in more systematic, extensive and ultimately unsustainable modifications to the environment by their sheer scale and complexity.

Indeed, early complex societies entailed a considerable number of metabolic rifts. For instance, soil salinisation caused significant problems for Mesopotamian cultures. As water tables rose as a result of irrigation techniques, so too did salt, which made agriculture increasingly untenable, contributing to the fall of the Sumerian civilisation (Artzy and Hillel 1988). However, the extent and severity of metabolic rifts induced by prior modes of production pale in comparison to the effect capitalism and colonialism has on the planet, as will be detailed below. During the industrial revolution, major rifts in hydrological cycles became much more pronounced. For example, eutrophication occurred as a result of the use of artificial fertilisers, an increase in population density and industrial activities (de Jonge, Elliot, and Orive 2002). As disease and death increased as a result of overcrowding, poverty and water pollution in Britain as a result of industrialisation in the mid to late nineteenth century, there was little interest in addressing the cause

(Clapp 1994). Even when administrators realised the problem, dilution of waste with natural sources of water was asserted as the solution to the environmental crisis, rather than ameliorating the ecological rifts caused by industrial practices (Clapp 1994).

Water and Capital

Water not only significantly determines the function of cellular processes, the structure of environments, the behaviour of animals, and the development of societies, it also operates in a more passive manner that often facilitates human activity. For example, water has been instrumental in enabling humans to traverse great distances and in generating power. This section will explore how water has been crucial to the expansion of colonialism and capitalism, whether it be through transportation or the disposal of industrial waste.

Trade

As agricultural civilisations developed, the production of food surpluses, as well as the products of now diversifying artisanal economies, led to the expansion in trade between communities. Here too, water played a central role in the development of local and regional markets. Increasingly, the importance of water to economic life — and later, capitalism — became much more apparent as societies expanded over the course of time. As communities traded beyond their border, transportation routes became crucial. Accordingly, the rise of industrialism induced the expansion

of riverine and maritime transport infrastructure in order to meet demand (Tvedt 2016, 23).

Yet, for the open sea to be utilised for Europeans as a means to facilitate mercantile activity, ancient beliefs related to the ocean had to change. Initially, the Greeks held ‘an ancient suspicion that the [Atlantic] ocean was not a real space at all’ (Greene and Morgan 2009, 39). It was seen as a ‘watery barrier that enclosed the world and led nowhere’, as a ‘place where the sun set, the gods dwelt, and the dead retired’ (Greene and Morgan 2009, 40). A significant reason for this belief related to the fact that socioeconomic and political activity for ancient Greece was confined within Southern Europe, Asia and Africa (Greene and Morgan 2009). However, as communities, trade and the appetite for resources expanded, in tandem with European exploration, their perception of the sea changed.

By the time of the European ‘discovery’¹² of the Americas, the ocean was seen as a conduit rather than a barrier (Greene and Morgan 2009). With this ontological shift, colonial ambitions followed, and many indigenous inhabitants suffered under conquest and the spread of European diseases (Green and Morgan 2009). As mercantile activity increased, an Atlantic triangle of trade formed, in part due to advances in maritime technology and the use of wind currents that circulated ships from Europe to Africa, across the ocean to the colonies of the ‘New World’¹³ (296),

¹² It deserves mention that Europeans did not ‘discover’ North America, but they in fact found it considerably populated with long-established indigenous communities.

¹³ New World is a Euro-centric term that obfuscates the history and ongoing presence of indigenous communities of North and South America.

and finally the return voyage to Europe (Parry 2017). The Atlantic triangle involved the transportation of labour power, raw resources and a variety of produced goods, initially stimulated by the European demand for gold, but later dominated by plantation-based commodities such as sugar and cotton (Parry 2017). For instance, as manufactured British textile goods were shipped to Africa for consumption at local markets, slaves were acquired and shipped to colonies in the Americas, while cotton was sent back to Europe to fuel the manufacturing industry (Bailey 1992; Inikori 1992).

Thus, slavery was a major component of the transatlantic trade and the development of British industrialisation. Solow (1991) described the Atlantic Ocean as a vast historical medium for the movement of slaves, which also included 'the output of slaves, the inputs to slave societies, and the goods and services purchased with the earnings on slave products' (Solow 1991, 1). Accordingly, the slave trade, both of slaves and their products, was not only the cornerstone of colonial economic activity, it was an integral factor for the development and expansion of capitalism. Firstly, slavery developed as an institution in Africa as a result of the influence of European economic forces introduced to the continent (Solow 1991). Secondly, labour shortages were a considerable challenge to the 'New World' colonies. Labour demand was particularly high at sugar plantations due to the nature of the work, which meant it constantly needed to be replenished (Parry 2017). Darity (1992) argued that because indigenous populations were decimated through a history of European conquest and disease, and free labour was prohibitively expensive, slavery was seen as a viable option for colonial expansion. This stark economic fact compelled Darity (1992) to claim that 'extensive

proletarianization in the New World required slavery. British economic expansion required colonies. Therefore, British economic expansion required slavery in the colonies' (259). Further, this also points to one of the ways in which capitalism required the use of water in the form of oceans in order to expand, by establishing new markets, accessing new resources, and mobilising new labour power, regardless of the moral obscenity it engendered.

Industrialisation

Water was not only integral to the flow of capital across expansive oceans but was also crucial to its development at a more local scale. One of the reasons why capitalism developed in Britain first as opposed to other parts of the world, such as India or China, is related to the unique precipitation patterns and the way water engages with the geography of the region (Tvedt 2016). Britain was better able to exploit water resources for trade and transportation as well as energy. For example, Britain and Scotland benefited from having waterways that were easily navigable with a long history of use, as they were seen as more reliable than roads — water transport during the medieval ages was approximately ten times more affordable than transport by land (Tvedt 2016). What added to Britain's advantage was the fact that there was little climatic variation — it rained moderately throughout the year and the rivers did not freeze during winter (Tvedt 2016). In general, the waterways were reliable and easier to modify to suit economic interests in the form of canal development.

China, on the other hand, had huge seasonable variation and long spells of drought and flooding from monsoons, meaning that canals and other watercourses were unreliable at times (Tvedt 2016). Trade was historically not the country's first priority. While China did invest in extensive water infrastructure in order to deal with these challenges, they were primarily designed to accommodate to the needs of the government, military, and agricultural sectors, rather than merchants (Tvedt 2016).

Like China, India had the challenge of monsoon flooding, as well as the predilection of some rivers having shifting, sandy banks (Tvedt 2016). This meant that river courses were prone to drastic change, and that establishing harbours were a marked challenge. Large scale technological development of India's waterways was not always possible due to its significant seasonable variation (Tvedt 2016). Much of the focus in India in terms of its resources was thus directed towards protecting communities from the risks of droughts and floods.

Britain was also advantaged by a more favourable climate that helped facilitate the industrial development of capitalism, providing the ideal conditions for water-based power systems (Tvedt 2016). Tvedt (2016) argues that 'water was the main power source in the initial phase of the Industrial Revolution' (32). Waterwheels, the main components that generated energy from watercourses, were 'the key technological [factors] in all the basic and new industrial processes' (Tvedt 2016, 32). The waterwheel likely originated from India or China and was later adopted by the Romans (Tvedt 2016). Initially, it was used to mill grains in Britain, with the technology later modified in mills to generate electricity during the Industrial

Revolution (Tvedt 2016). However, in order for mills to function for this new purpose, they required additional infrastructure in the form of millraces and dams (Tvedt 2016). Furthermore, these millraces required three conditions: for water to contain only a minimum of silt, for water systems to provide a continual supply year round, and to provide enough volume to generate power around the clock (Tvedt 2016). These conditions were best met under ideal geographical settings. Thus, while other nations were developing similar manufacturing technologies, Britain was advantaged by its ideal waterscapes, which helped provide the nation with a competitive edge in its economic activity (Tvedt 2016). Therefore, water, and how it shaped both local geography and the climate of Britain, was immensely important in facilitating the development and expansion of capital.

It bears mentioning that the transformation of Britain into an industrial power engendered environmental costs in the form of considerable metabolic rifts with detrimental effects to waterways. As rural populations flooded to the city, overcrowding and pollution became endemic. Waterways were seen as viable means of disposing industrial waste, such as ash or tanner dyes, even if the practice was discouraged (Clapp 1994). Water pollution became so much a problem in London in the nineteenth century that at least one report was made of adolescents lighting the Bradford Canal on fire on multiple occasions (Clapp 1994).

Commodification of water and the inequities of class, gender and race

As discussed previously, water has been integral in the socioeconomic life and development of societies, regardless of their mode of production. However, another remarkable feature of capitalism is the contemporary ontological shift occurring in which water itself has become a commodified good, signifying a form of accumulation by dispossession of water. Increasingly, water is being regarded through the lens of exchange-value, as societies around the world are influenced by neoliberalism (Roberts 2008). By focusing on exchange-values, rather than use-values, a key characteristic of capitalism according to Marx (Foster, York and Clark 2010), water increasingly is seen as a good to be purchased or traded, rather than a free and vital substance accessible to everyone. The irony in this case is that while water may have until recently been a part of the commons, the growing enclosure of water by corporations plunders many of free and necessary access to it. Thus, detailing the process of the commodification of water also provides a lens through which to show some of the classed, raced and gendered inequalities created and exacerbated by capitalist economic and social relations.

Neoliberalism is a recent manifestation of accumulation by dispossession (Harvey 2005), and over the last several decades attempts to commodify water have expanded. Examples include the privatisation of municipal water services, as well as the proliferation of bottled water. However, the process has been fraught with problems, at least for the privatisation of tap water services, due to health and ecological risks posed by market forces (Roberts 2008). For instance, the

community of Kwazulu-Natal in South Africa privatised their water supply, resulting in service disconnections and price hikes, driving the most impoverished of residents to use a local polluted river instead (Roberts 2008).

The commodification of water is still far from total, and in fact has successfully been challenged in some instances, with perhaps the most famous example being the Bolivian struggle against water privatisation¹⁴ (Spronk and Webber 2007). However, what concerns Roberts (2008) is not only the outcome, but the process. Through her analysis of the hegemonic nature of capital, Roberts (2008) argues that ‘we are currently witnessing the emergence of an historically specific socio-environmental relation: one which increasingly seeks to articulate the value of all social and environmental relations, including water, in economic terms’ (538).

While the enclosure and commodification of public water supplies of water continues to be controversial in society and difficult to accomplish for capitalists, some corporations have been able to circumvent the difficulties through the development of the bottled water industry. As private companies encountered considerable obstacles to the privatisation of tap water services, in part due to the physical characteristics of water — for example, its weight and bulky nature make it difficult to ship — and societal importance, success has been achieved through the commodification of water as a smaller, more manageable product when it is

¹⁴ After Bolivia’s water utilities were privatised in the 1990s, in part due to the influence of the World Bank, residents of Cochabamba resisted by organising marches, roadblocks and demonstrations, resulting in the return of water management to the public (Spronk and Webber 2007).

encased in plastic¹⁵ (Jaffee and Newman 2013). The bottled water industry, worth approximately \$65 billion in 2012, has been able to achieve enormous success by marketing bottled water as a safe alternative to more conventional sources (Jaffee and Newman 2013). This is evident in the instances of contaminated tap water supplied by municipal sources as a result of infrastructure and funding cuts, which have helped contribute to the growth of the bottled water industry as public confidence in the public sector wavered (Jaffee and Newman 2013). Because water has increasingly been appropriated through the process of capitalist accumulation, or accumulation by dispossession, the delivery of water as a free and accessible service has been severely curtailed not only by the cutting of municipal services, but also through the mining of aquifers by bottling companies, which consequently threaten local ecosystems.

In an analysis of the experiences by communities affected by the privatisation and commodification of water, Roberts (2008) highlights how the primitive accumulation of water has affected social reproduction. Cindy Katz described social reproduction as:

the fleshy, messy, and indeterminate stuff of everyday life. It is also a set of structured practices that unfold in dialectical relation with production with which it is mutually constitutive and in tension. Social reproduction encompasses daily life and long term reproduction, both of the means of production and the labor power to make them work. (as cited in Roberts 2008, 545)

¹⁵ A product of fossil fuels, which not only contributes to climate change, but pollutes the biosphere even down to the microscopic level (Iniquez, Conesa and Fullana 2017).

And as, Diane Elson reminds us, social reproduction is 'disproportionately reliant on the unpaid work of women and girls in the family and community and the paid work of women employed by state agencies' (as cited in Roberts 2008, 545).

Rather than strictly examining this process through the lens of class, Roberts (2008) argues that 'the primitive accumulation of water must be viewed not solely, or even primarily, in terms of relations of production, but rather in terms of those of [gendered] social reproduction' (545). Through the theoretical contributions of Sylvia Federici, Roberts (2008) makes the case for including 'broader social processes' in the understanding of primitive accumulation, 'particularly the violent disciplining of women' and the division between capitalist production and social reproduction (Roberts 2008, 542). Rather than conceiving primitive accumulation strictly in terms of class, Federici argued that "'an accumulation of differences and divisions within the working class... [is] built upon gender, as well as 'race' and age, [and is] constitutive of class rule and the formation of the modern proletariat'" (as cited in Roberts 2008, 542). For many women in places like Kwazulu-Natal, 'when water is priced out of reach of families, women bear most of the burden of having to seek alternative sources of water,' (549) which negatively affects their safety and other aspects of their lives, including generating income, education opportunities, or involvement politically or within their communities (Roberts 2008). Accordingly, the act of primitive accumulation, or the enclosure of the commons, is not experienced strictly by class alone, but encompasses additional social categories, particularly gender and race, which greatly influence how some segments of the population are disadvantaged more than others.

Thus, the capitalist accumulation of water has led to increased stress on marginalised groups in addition to the reinforcement of hierarchal relations based on race, gender and class. Examples of this phenomenon include the increased distance women who earn lower income in Kwazulu-Natal have to travel in order to obtain adequate sources of water when more local water is priced too high for them (Roberts 2008). In other instances, women have been reported to be more likely tasked with providing care for those who have succumbed to waterborne diseases, a likely result of having reduced access to clean sources of water due to its privatisation (Roberts 2008). To any astute observer of capital, it should be axiomatic that the asymmetrical effects of accumulation by dispossession based on gender is not exclusively a phenomena applying to the domain of water, but extends to all aspects of culture, the economy and the political.

Water and environmental crisis

As discussed in the previous chapter, capitalism is formed by a logic of division, affecting communities and the affinity between humans and nature. Capitalism is predicated on the exploitation of communities and the natural world, and as such an ethos of individualism or self-centredness best facilitates this goal — it disrupts communities and forms new relations in order to facilitate its growth. Analogously, water also contains the capacity to dissolve chemicals or objects and shape the world that surrounds it. Through its unique qualities, water has helped shaped geography and the behaviour of organic life on this planet. However, water is also

an absorptive substance, and through its industrial use it reflects and contributes to some of the most egregious aspects of capitalism.

Perhaps the most pertinent observation of this phenomenon is invoked through the imagery of Rachel Carson's thesis, in which water was depicted as being a carrier of noxious elements:

[I]nvisible poisons flowing through the environment cannot be limited to one specific purpose, nor to one exclusive locale, nor can they be finally contained, but these poisons are unintentionally spilling over and killing off birds and plants and animals, including us. (as quoted in Sussman 2012, 136)

Considering the unique life-providing properties of water, how it shapes us as organisms, shapes our world, and how we function on this planet, it is also worth remembering that those very same properties also facilitate the passage of detritus and death. It's not just through economic processes or mismanagement, but also through natural processes that water's other side becomes apparent. Drought, storms, sea level rise and tsunamis all are lethal in effect and can have catastrophic effects on human populations, and each is exacerbated through the capital-induced ecological rift that has led to climate change.

Water and climate change

The science of climate change itself is often depicted in terms of carbon cycles in the context of a warming planet. However, less acknowledgement is given to the centrality that water plays in climate change. Water is intimately connected to climate, which is affected by the atmosphere, ocean and land. Tvedt (2016) argues

that 'water plays a crucial role in the workings of the climate system and changes in climate in societies will first and foremost manifest themselves as changes in the way water runs in the landscape' (177).

As anthropogenic global warming increases, there are a number of ramifications for hydrological cycles. Such consequences are not without a considerable degree of complexity, bordering on the paradoxical, as the substance that sustains life is poised to also threaten it. As water vapour is predicted to increase, a critical factor in determining precipitation, actual annual mean precipitation is expected to only marginally increase in comparison to the expected increase in episodes of heavy precipitation (Bates et al. 2008). For example, tropical cyclone activity, in the form of greater precipitation and wind speed, is expected to increase in the future due to the elevation in tropical sea surface temperatures. While this does not necessarily mean an increase in the actual number of storms, it is expected that their severity will increase because of the heightened availability of water vapour over oceans, particularly in the tropics of the Pacific (Bates et al. 2008).

Whereas tropical and high-latitude regions are expected to be inundated with severe storms, mid-continental and mid-latitude areas are predicted to be drier and more prone to droughts (Bates et al. 2008). While some regions will likely experience 'intense and heavy episodic rainfall events with high runoff amounts, [they] are interspersed with longer relatively dry periods with increased evapotranspiration, particularly in the sub-tropics' (Bates et al. 2008, 26). In other words, some regions will experience the hardship of drought, and what little water they receive will be intense and provide little opportunity to be properly absorbed

into the soil. The predicted droughts 'could result in regional vegetation die-off and contribute to an increase in the percentage of land area experiencing drought at any one time' (Bates et al. 2008, 26). Thus, some areas are likely to experience prolonged drought at times, followed by episodes of severe flooding.

The cryosphere, or the regions of the planet where water can be found in its solid form, stores approximately seventy-five percent of the available freshwater of the world. It is linked to the globe's 'surface energy budget, the water cycle and sea-level change' (Bates et al. 2008, 19). As the earth warms, ice caps and glaciers are experiencing an increased mass loss due to melting related primarily to climate change, in addition to the thawing of permafrost, which will result in the further release of greenhouse gases into the atmosphere in the form of methane (Bates et al. 2008; Marshall 2012). While ice cap and glacier melt is very likely to contribute to global sea level rise, the thermal expansion of water, or the overall sea volume increase as a result of the warming of the ocean, is expected to be the greatest factor, leading to significant sea-level rise (Bates et al. 2008, 28). Specifically, Bates et al. (2008) have estimated that thermal expansion will contribute between seventy and seventy-five percent of overall sea level rise. Thus, anthropogenic climate change significantly leads to the thermal expansion of water, as well as the melting of the cryosphere, contributing to a host of social and ecological crises.

Conclusion

This chapter has focused on how connected water is to life on this planet. It began with a reflection of how the substance is critical to organic life as well as how it shapes the earth. It has also been demonstrated as a critical element in the origin of stratified societies. In addition, water has been shown to have been a very important component in the development of trade and capitalism. Water was also instrumental in facilitating colonialism in particular by the dispossession of indigenous populations throughout North and South America, due to the function of the ocean in facilitating the transportation of ships in the Atlantic Ocean. Lastly, water's immense importance to climate change was discussed. As the earth warms through the combustion of fossil fuels, the manifestation of a planetary-wide ecological rift generated by capital, glaciers are melting while oceans expand in volume, raising the sea level and consequently posing a threat to the viability of current coastal communities. Additionally, as water vapour in the atmosphere increases, the likelihood of more severe storms increases, flooding some regions while others may experience prolonged droughts. Or regions that have endured prolonged periods of drought may also experience catastrophic flooding. The Arctic in particular will experience some of the most radical climatic and ecological changes as sea ice and glaciers melt in the region (Bates et al. 2008).

Again, it bears repeating that this chapter covered only some of the broader trends that are predicted through climate change and does not encapsulate the entirety of the danger it poses to humanity. Nonetheless, what is discernible from this

discussion is that the molecule, hydrogen oxide, affects and is affected by the development of geological and atmospheric processes, organic life and human civilisation. Human civilisation has been greatly affected by hydrological processes, which in turn are affected by human activity. Consequently, how we impact the planet via socioeconomic activities, or by our means of production, which is greatly informed by our ontological relationship with nature, affects the hydrological cycles we greatly depend upon, which in turn affects both the biosphere and human civilisation. Accordingly, one may correctly conclude that we exist in a state of dependency upon nature, one which renders civilisation as unsustainable if we continue to view the planet as an object to be exploited.

Chapter Four: Sovereignty and Arctic Exceptionalism

For Marxist critics, capitalism and colonialism have historically operated predictably according to the logics of accumulation by dispossession. European powers ‘discovered’ desirable territories, usurped the land — often violently — and subjugated its respective indigenous inhabitants by imposing the capitalist mode of production. Examples are replete, which include the conquest of Central and South America as well as expansion of the British Empire into North America and the Antipodes. European colonisers were able to wrestle and maintain control of these regions in part because of their ability to navigate oceans and waterways through the use of sailing, and later, steam-powered ships. Furthermore, water was instrumental in the establishment of capitalism in these newly seized regions through the use of water-mediated technologies such as mill races and steam power. Thus, as argued in the last chapter, the forms and characteristics of water are fundamental to the emergence and expansion of capitalism.

Yet, when one considers the history of Inuit in the Canadian Arctic, the pattern of capitalist and colonial development that characterised much of the rest of the globe do not apply in the same way. Very few settlers ventured into the Arctic to live, and much of the economic activity centred on ‘renewable’ resource extraction in the form of hunting and foraging (Wright 2014). The fundamental reason for this discrepancy is related to the nature and role of water in the region. The cold temperatures and prevalence of ice in the Canadian Arctic was a key influence in how the region was perceived by Europeans and Canadians, which in turn shaped

colonial expansion into the Arctic and the kind of economic activities that were pursued, a topic that will be explored in this chapter.

It bears noting that the study of Inuit in the Canadian Arctic from a Marxist perspective is not merely to satisfy academic curiosity. It is important because, similar to other historically colonised groups around the world, Inuit are the least responsible for climate change, yet must endure its harshest effects. Further, it is an important case study because of the unique contribution it yields for postcolonial theory; unlike non-circumpolar indigenous groups, Inuit have been used by Canadian administrators as ‘human flagpoles’ (Wright 2014, 142) in order to assert settler colonial sovereignty claims over the Arctic. Lastly, because the Arctic is experiencing much more pronounced effects of climate change compared to other ecosystems, Inuit serve as harbingers for what is to come for the rest of the planet.

The purpose of this chapter is to explore how capitalism and settler colonialism developed and impacted Inuit in the Canadian Arctic and the role of water and ice in these processes. It will begin with an examination of early trade between Inuit and Westerners and how this trade contributed to the creation of metabolic rifts for the respective indigenous communities. The chapter will then focus on the significance of welfare and settlements for Inuit as fallout of the metabolic rifts and an indicator of the failure of the capitalist mode of production in the Arctic. Furthermore, the emergence of liberal welfare state colonisation will be explored partly as a means of asserting settler colonial sovereignty over the region. Lastly, the chapter will conclude with an examination of how Inuit have resisted and strived for greater autonomy in Canada as a result.

Early Arctic Contact

For hundreds of years, the Arctic had remained an object of fascination for *qallunaat*¹⁶. It was (and still is) a land of extremes, in terms of temperature, the barrenness of vegetation, the oscillation between daylight and darkness, as well as the isolation it engenders because it was (and still is) so sparsely populated. Because of these extremes, the land proved to be too inhospitable and undesirable for *qallunaat* settlement, who contented themselves with the preoccupation of finding a maritime route to traverse the region, hunt whales, or trade with Inuit (Wright 2014). Thus, Inuit in the Canadian Arctic were largely spared the initial invasion and occupation First Nations and Métis were forced to endure. Nonetheless, both colonial and capitalist forces managed to penetrate Inuit society, irrevocably altering their way of life. Consequently, the historical experiences of Canadian Inuit in the Arctic provide a great example in understanding how capitalism, colonialism and ecology are intimately connected.

Unlike their indigenous neighbours to the south, the process of colonisation began much later for Inuit in Canada. While the Arctic became a crucial signifier of national identity for Canadians (Kalant 2004), virtually no early settlement activity occurred in the region (Wright 2014; Damas 1993). For *qallunaat*, the Arctic was an object of fantasy, and a possible thoroughfare for traders and explorers, but not

¹⁶ The term *qallunaat* is Inuit in origin, which denotes non-Inuit generally of European ancestry (Wright 2014). For the purposes of this paper it shall refer to early Europeans who ventured in the Arctic and Canadian settler colonialists.

necessarily a place to settle themselves, in part because the landscape was discerned as inaccessible, inhospitable, perilous, and absent of economic opportunities they deemed worthwhile, all of which was due to the climate and how water manifested in the north — notably, sea ice (Wright 2014). In essence, the form of water and how it mediated temperature in the Arctic was crucial in determining the kinds of human activity that were pursued in the region.

Yet, while there were colonial reservations in settling the north, the early *qallunaat* activities that did occur in the Arctic had transformational socioeconomic repercussions for Inuit society (Wright 2014). As colonies proliferated in the south, the Canadian Arctic was increasingly visited by explorers, scientists, missionaries¹⁷ and whalers (Tester and Kulchyski 1994). The development of the whaling industry in the Arctic had a significant impact on Inuit society¹⁸. Not only did *qallunaat* whalers place a strain on whale populations, they also subsisted off other local Arctic wildlife, notably caribou herds, which heightened the difficulty in the capacity of Inuit in sustaining themselves (Mitchell 1996). The strain was intensified

¹⁷ Missionaries made an indelible impression upon Inuit society: through indoctrination, mediating their experiences vis-a-vis traders, whalers and other *qallunaat*, as well as influencing whether or not they chose to settle (Tester and Kulchyski 1994; Mitchell 1996). Missionaries were quite successful in converting Inuit, on account of the influential role they held in Inuit society: as dentist, doctor, educator, mediator and welfare provider (Mitchell 1996). As missionaries converted Inuit, with the help of the Canadian government they also began to establish schools at various trading posts (Mitchell 1996). In the 1950s, influenced by the national momentum for more social programming, the government took over the education sector in the Arctic and brought its curriculum in line with national standards (Mitchell 1996).

¹⁸ Prior to the establishment of the Hudson's Bay Company in the Canadian Arctic, *qallunaat* whalers were among the earliest sustained contacts Inuit had with Westerners (Wright 2014; Tester and Kulchyski 1994).

‘when the whalers realized the commercial value of skins and furs beyond their own needs. Trading for these became increasingly important as whaling declined’ (Mitchell 1996, 66). Thus, hunting for trading purposes, rather than purely for subsistence, introduced a metabolic rift in the region that affected the wellbeing of Inuit. As wildlife Inuit would traditionally rely upon became more scarce in affected areas, indigenous communities would increasingly become burdened with hardship, compelling them to rely more on trade and the labour opportunities whaling offered in order to sustain themselves (Mitchell 1996).

Inuit and the Hudson’s Bay Company

The Hudson’s Bay Company (HBC), established in 1670, is regarded as one of the oldest merchandising companies in the anglophone world (Ray 2009). The company was enormously influential in the foundation of Canada as a settler colonial state, and significantly altered the socioeconomic and political lives of indigenous communities it encountered throughout the country¹⁹ (Ishiguro 2016). The success of the HBC depended upon the labour of indigenous participants in the fur trade (Ishiguro 2016). Its employees were merchants, not trappers, and depended upon the knowledge, supplies and cooperation of indigenous communities to provide the furs and maintain a thriving trade (Ishiguro 2016). Consequently, the introduction of the fur trade had profound socioeconomic effects on the aboriginal groups involved (Ray 2009). Mercantile exchanges led to reliance upon European goods and food stuffs, cultivating a shift away from more traditional

¹⁹ For a more detailed account of the impact the HBC had on indigenous communities, please refer to Mitchell (1996) and Ishiguro (2016).

means of subsistence (Ray 2009). This led to the emergence of metabolic rifts as trapping and hunting placed new pressures on wildlife based on the demand to develop surpluses.

Initially, the HBC was not interested in trading with Inuit, focusing instead on the exploration of the Arctic and whaling. Over the course of time, traders, like whalers, were able to cultivate an appetite for *qallunaat* goods among Inuit, however early trading was still too irregular and often unsatisfactory for HBC officials (Mitchell 1996). Due to the challenging nature of the environment (in the form of snow, sea ice and frigid temperatures mediated by water vapour) and as the growth in traded goods were often not as high as expected, voyages to the north were seldom (Mitchell 1996). As a consequence of this trend, trading expeditions into the Arctic during the mid 1850s occurred only once in two to four years (Mitchell 1996). An important reason for this phenomenon was that while some Inuit were eager to trade, many rarely maintained a surplus of marketable goods, which frustrated traders as they found many indigenous families unable to barter enough to make more frequent trips to the north worthwhile (Mitchell 1996).

At the turn of the twentieth century, the HBC began to sharpen its focus on the Arctic (Ray 1990). Because of technological innovations, such as the telegraph and rail systems, new companies were able to develop and expand, presenting the HBC with competition to their monopoly (Ray 1990). Furthermore, First Nations participants in the fur industry were able to trade for better prices with a number of competitors, rather than exclusively with the HBC (Ray 1990). It was for 'this reason and with the objective of gaining a larger share of the increasingly lucrative trade in

arctic fox, [that] in 1913 the directors decided to embark on a major expansion program in the Arctic' (Ray 1990, 95). However, it was not just the changing socioeconomic situation in the south that whetted the appetite for the northern expansion. Perceived economic and political threats to Canadian sovereignty also compelled the HBC to initiate mercantile expeditions and establish posts in the Arctic in order to develop an economic relationship with Inuit, and thus, presumably, the cultivation of their loyalty to the Crown (Mitchell 1996).

For decades, the company attempted to spur on commerce among Inuit communities by offering desirable goods Inuit could not obtain locally, which slowly enticed Inuit to shift their hunting practices (Mitchell 1996). Similar to the effect whalers had on Inuit earlier, HBC traders also stimulated metabolic rifts among indigenous communities by instilling a more capitalist-orientated mode of production, favouring the generation of surplus through the hunting and trapping of particular animals. Furthermore, as a consequence of the emerging trade, the material culture of Inuit gradually changed. Before the twentieth century, few Inuit directly traded with *qallunaat* (Mitchell 1996). Over time, the trade of *qallunaat* goods had a substantial impact on Inuit society; traditional implements began to be replaced or supplemented with, for example, steel needles, telescopes and firearms (Mitchell 1996). Firearms in particular had a tremendous effect on altering hunting techniques for Inuit. Hunters found they could cover greater distance, no longer had to sneak up on game, and more readily generate a surplus of goods (Mitchell 1996). Furthermore, the importation of whaleboats enabled Inuit to haul more goods, better secure themselves in the event of an attack from large animals, increase the possible extent of travel and enhance their employment prospects with

whalers (Mitchell 1996). In short, the cultivated desire for *qallunaat* goods facilitated the growth of the fur trade, significantly impacting Inuit society and the ecosystem they depended upon:

While the new arrangements favoured the continuance of previous work — the hunting and gathering of local resources — and even increased its efficiency, they also contributed to a loss of skills, restricted movement, and put pressure on resources in the interest of obtaining a surplus. A surplus, to be traded for ever more goods, especially ammunition, was required to sustain the cycle. (Mitchell 1996, 71-72)

The impact imported *qallunaat* goods had on Inuit consequently altered the relations of production (Mitchell 1996). Inuit increasingly shifted away from subsistence hunting while engaging more deeply in the fur trade. The adaptation of *qallunaat* goods also altered Inuit behaviour by virtue of their function. For example, introduced rifles increased the solitary nature of hunting for Inuit, as the enhanced accuracy and range of firearms abolished the need for additional hunters in the case of caribou hunting (Mitchell 1996, 72). As a consequence, the introduction of *qallunaat* goods engendered metabolic rifts by affecting how and what Inuit were motivated to hunt.

The sporadic nature of Arctic trade changed when the demand for white fox fur at the beginning of the twentieth century began to rise, enticing HBC officials to increase the company's presence in the region (Mitchell 1996; Damas 1993). As *qallunaat* demand for the fur heightened, administrators from HBC increased their efforts at manipulating Inuit to adopt a more capitalist-orientated mindset in order to take advantage of the burgeoning market (Mitchell 1996). For example, HBC officials provided goods as a form of credit, such as hunting equipment, foodstuffs and even boats, in order to better tether the community to an economic system

more focused on the fur trade (Damas 1993). Hudson's Bay Company administrators believed that the lending of certain goods would minimise the need for traditional subsistence activities, allowing hunters to devote more time to the fur trade (Damas 1993). Indigenous 'trappers would obtain supplies on credit and return to posts with furs a year later, paying their bills and gaining more credit for the coming year' (Tester and Kulchyski 1994, 4). The credit scheme locked Inuit into the trade economy, as it compelled participants to obtain a surplus of fur in order to pay off their loans, and in order to achieve this task *qallunaat* hunting goods, especially ammunition, were required. The ecological consequences of the scheme included the compounding of population pressures on some Arctic species, which increased food insecurity for Inuit. Nevertheless, the system was advantageous for the HBC, as it introduced a new pool of labourers in the North and helped produce fur more reliably for the company (Tester and Kulchyski 1994). However, because of the volatile nature of the fur trade and the metabolic rifts it engendered, the credit scheme would in time prove to be a liability for both Inuit and the HBC.

The Failure of Capitalism (in the Canadian Arctic)

Welfare

Welfare has a long and varied history throughout the world, but it was not until the rise of capitalist nation states that its modern form emerged. Despite the rhetoric otherwise, it is contended by some that welfare was and still is an insurance policy not primarily for the wellbeing of individuals struggling to sustain themselves and

their families, but against rebellious furore (Mitchell 1996). Marx argued that it was a system deployed 'to bribe the workers by more or less concealed alms and to sap their revolutionary vigour by making their position tolerable for the moment' (Engels and Marx 1978, 280). From this perspective, welfare is in fact a symptom of the failings of capitalism, an attempt to assuage the harsh consequences of the economic system and to pacify a population that might otherwise have attempted to overthrow it.

Canada, not unlike many other capitalist nation states, adopted a modern state welfare system in the mid twentieth century. Prior to that, the country had a more piecemeal approach to the wellbeing of its most vulnerable of citizens in the Arctic. Early state welfare interventions from the late nineteenth to the early twentieth century were characteristically sporadic, paternalistic and considerably parsimonious (Tester and Kulchyski 1994). The Royal Canadian Mounted Police (RCMP) were expected by the state to be as frugal and miserly in their relief aid as possible (Tester and Kulchyski 1994). In settlements where the HBC operated and the RCMP were absent, the company was responsible for providing relief, such as equipment or supplies, issued with the understanding that they constituted a form of credit or loan, and were thus expected to be repaid back to the company at a later period (Tester and Kulchyski 1994). Hudson's Bay Company only allocated credit to 'capable' hunters, whereas those who did not meet the standard were given very limited credit, if any at all, effectively 'creating an underclass in Inuit communities' (Tester and Kulchyski 1994, 63). Being 'capable', according to the company, meant having a set of skills and interests conducive to the capitalist fur trade, not those necessarily consistent with subsistence hunting. As such, 'capable'

hunters were expected to look after those who were in need, and in some cases the more prosperous communities were expected to take ownership of relief efforts, rather than the company (Tester and Kulchyski 1994). Thus, the HBC developed a scheme that privileged those who more readily adapted to the capitalist mode of production, while those who maintained an indigenous way of life were effectively punished.

As the Arctic fur trade went into decline in the 1920s, the credit scheme pulled many Inuit into a spiral of dependency (Tester and Kulchyski 1994). The socioeconomic costs of the program compelled the HBC to gradually pass responsibility for the welfare of Inuit communities to the government, a program that many Canadian administrators and legislators perceived as an unwanted burden (Tester and Kulchyski (1994). The transfer of accountability was a lengthy process, beginning in 1870 and lasting well into the 1950s, depending on the particular region in question (Tester and Kulchyski 1994). Essentially, the socioeconomic costs inflicted upon Inuit communities as a result of the credit scheme were socialised as the government adopted a public welfare system to help ameliorate the poverty many were forced to endure with the declining fur trade (Tester and Kulchyski 1994). According to Mitchell (1996), social welfare schemes served to reduce labour costs for businesses, and 'in the case of the Inuit, make up for the fact that their labour is not needed, and to neutralize resistance' (390).

Exactly what branch of government was responsible for the wellbeing of Canadian Inuit was debated for decades, from the late nineteenth century until the 1950s (Tester and Kulchyski 1994). A major reason for the dispute was related to the

absence of any reference to the indigenous group in Canada's early legislative acts. For example, Inuit were not included in the British North American Act of 1867, nor the Indian Act of 1876, indicating the marginal position they occupied in the minds of colonial officials at the time (Tester and Kulchyski 1994). It was not until 1880, when Britain ceded control of the Eastern Arctic to Canada, that a significant number of Inuit were incorporated within its national boundaries (Tester and Kulchyski 1994). Following the year 1880, federal and territorial governments long debated who had the responsibility to manage Inuit affairs (Tester and Kulchyski 1994).

The neglect Inuit experienced from administrators from the south began to change in the face of political developments regionally and around the world, especially following seismic political shifts after World War Two. As the capitalist economic and political order increasingly marginalised swaths of the population, socialists, communists and other left-wing agents in Canada exerted considerable electoral pressure for social reform, leading to the establishment of social assistance, universal healthcare and pension programs (Tester and Kulchyski 1994). The welfare services the Canadian state implemented encompassed every corner of the country, including the Arctic, albeit in a markedly different approach than the south.

The motivations to implement the welfare programs differed based on the region of Canada in question. While concern for the material wellbeing was ostentatiously cited as the reason for social assistance programs for settler colonists in the south, other factors were subtly cited in the impetus to include Inuit (Tester and Kulchyski 1994). Then acting superintendent of Indian Health Services, P. E. Moore remarked

in 1946, “although neither law nor treaty imposes such a duty, the Federal Government has, for humanitarian reasons, for self-protection, and to prevent the spread of disease to the white²⁰ population, accepted responsibility for health services to the native population” (as quoted in Stevenson 2012, 595). In this context, ‘self-protection’ was likely implied by Moore to mean that welfare provision was a means of better securing the state by rendering the situation of its most vulnerable citizenry as tolerable, thus decreasing the chances of social unrest.

Moore’s ‘humanitarian concern’²¹ was likely a disavowal of Canada’s role in the plight of Inuit. Prior to 1945, the attention given to the North centred around the foci of mining, military and exploratory matters, with the Inuit being largely ignored (Tester and Kulchyski 1994). However, as the Arctic gained increased attention after World War Two, the government fretted over potential embarrassment regarding the historical and contemporary treatment of Inuit (Tester and Kulchyski 1994). Canada’s reputation regarding Inuit became a concern after a number of factors came to light, including ‘the internal bickering between Catholic and Anglican faiths; the rate at which social and material circumstances were changing; and the inability of private sector interests (notably the Hudson’s Bay Company) and the churches to meet educational, health, and welfare needs’ (Tester and Kulchyski 1994, 56). Programs, such as the allocation of a family allowance, medical services,

²⁰ The author acknowledges the racist undertones of the language utilised by P. E. Moore and does not condone its use.

²¹ The concept of Canadian humanitarianism in the Arctic was used to propagate the idea of colonial officials as selflessly concerned with the wellbeing of Inuit and the drive to ‘modernise’ the region (Mitchell 1996). However, as Stevenson (2012) demonstrated, the rhetoric and imagery of bureaucratic heroism obscured the legacy of *qallunaat* in exacerbating the many challenges Inuit faced, including famine outbreaks and the spread of infectious diseases (Tester and Kulchyski 1994).

and the establishment of a pension plan, were introduced in the Arctic during this period (Tester and Kulchyski 1994). However, it became clear that attempts at state-sanctioned welfare were insufficient in placating international critics (Tester and Kulchyski 1994). Indeed, the government was embarrassed in 1952 when Farley Mowat published an internationally-renowned book on the Inuit that depicted the state as neglectful and incompetent in its handling of Inuit affairs (Tester and Kulchyski 1994).

Ostensibly, welfare provision was executed as a means to alleviate poverty in the Arctic and to repair the state's damaged reputation. However, the programs also carried out a more important function: the assertion of Canadian sovereignty over the region (Tester and Kulchyski 1994). Officials believed that in order to have international recognition of sovereignty over a given territory, it was necessary to not only exhibit sustained interest in it, but also exert responsibility for the welfare of its populace (Stevenson 2012). It was not so much a concern for Inuit wellbeing that informed this newfound view, but the role Inuit offered to the nation state. In writing to Prime Minister Mackenzie King in 1930, Dr. Helen MacMurchy stated that '[i]f we fail them the result will be that the Eskimo will be exterminated and that at no distant rate. If we lose the Eskimo, we lose the Arctic' (as quoted in Tester and McNicoll 2006). Yet, despite the government's feigned concern for the community, welfare provision was marked with a considerable degree of reticence. In fact, many government officials desired to initiate as little involvement as possible, encouraging Inuit to maintain their traditional clothing and subsistence strategies (Tester and Kulchyski 1994). According to Tester and Kulchyski (1994), 'relief was seen as something that produced indigence. Under the rhetoric of

supporting independence, relief could be withheld and officials had a convenient rationalization for limiting the resources they spent on Inuit welfare' (24). In essence, Inuit interested most state administrators only in the function they could provide as markers of Canadian sovereignty.

The negligent and poorly managed credit and welfare schemes of the Canadian Arctic had far-reaching consequences for Inuit living in the region. Not only were individuals and families enticed by *qallunaat* into an unsustainable economic model, predominantly for the benefit of the latter, Inuit had to endure the traumatic consequences of economic contractions in the fur trade with little material support from the government (Michell 1996). As the majority of the time spent by Inuit was focused on the fur trade rather than subsistence hunting, and due to the metabolic rifts engendered by the new mode of production, Inuit were made especially vulnerable to the volatility of global markets. Welfare, itself a symptom of the failure of capitalism, was driven not by genuine altruism, but by a desire to keep Inuit alive merely as a means of asserting national territorial claims over the region.

Relocations

Inuit have been nomadic prior to contact with *qallunaat*. The transition towards permanent settlements²² occurred over a prolonged period of time as Inuit were influenced by *qallunaat* whalers, merchants and missionaries. Similar to the welfare programs deployed in the Arctic (including social assistance payments, pension

²² Please refer to Tester and Kulchyski (1994) and Marcus (1995b) for more detailed accounts of the historical process.

plans and universal health care, among others), relocation programs — which entailed relocating Inuit from existing settlements to other, more remote locations in the Arctic — were framed in the language of humanitarianism. Participating Inuit were led to believe that they were to be relocated in prime areas of abundant wildlife (Tester and Kulchyski 1994; Marcus 1995b).

However, from the early to mid twentieth century, HBC officials conducted these programs in order to serve the interests of the company, partially to alleviate the burden of welfare provision (Tester and Kulchyski 1994). The HBC credit system left many Inuit especially vulnerable to the fluctuations of capital, which was most pronounced during the Great Depression (Tester and Kulchyski 1994). Consequently, the costs associated with relief efforts, especially in the 1930s, were prohibitively high, which incentivised the relocation of Inuit (Tester and Kulchyski 1994).

In order to ameliorate the situation, some Inuit individuals, families and communities who were especially affected by economic turmoil were persuaded by HBC officials, with the approval of the government, to relocate to northern, remote areas, in settlements thousands of kilometres away under the pretence that their lives would be improved (Tester and Kulchyski 1994). For instance, In 1934, Inuit from Baffin Island, an area that was perceived to be experiencing hardship at the time, were enlisted by both government and HBC officials to relocate to Devon Island farther north under the guise that life would be easier, as indigenous participants would have access to an abundance of wildlife (Marcus 1995a). For the government, relocations were considered 'a concession to the HBC in order to

ensure that responsibility for relief did not erode the company's profits to the point where they might consider leaving the region' (Tester and Kulchyski 1994, 64). For the company, this policy meant that the Arctic fox could be better exploited, which also benefited the state in its assertion of Canadian territorial sovereignty over the Arctic (Wright 2014). In reality, participating Inuit struggled to survive, as they were forced to contend with living in unfamiliar territory and poor access to wildlife, resulting in some cases with famine (Tester and Kulchyski 1994; Marcus 1995b).

While the HBC was motivated economically in relocating Inuit, the nation state also directed a series of relocations for political purposes. After World War Two, Canadian administrators sought to increase its presence in the Arctic due to the perceived threat of the Soviet Union as well as the increased regional activity of the United States (Tester and Kulchyski 1994; Wright 2014). It was believed that by establishing settlements of indigenous communities in key remote Arctic locations that the federal government could claim territorial sovereignty over the region²³ (Tester and Kulchyski 1994). The main reason why Inuit, and not *qallunaat* settlers, were chosen to be relocated was because the latter expressed little desire to permanently settle in the Arctic mainly due to the extreme conditions of the region (Wright 2014). While the state-sanctioned relocations were thought to benefit colonial settlers, the policy proved to be disastrous for Inuit as they were forced to endure the severance of sociocultural ties to loved ones and many struggled to adequately supply enough food to sustain themselves (Wright 2014).

²³ Canada was not the only nation to mobilise Inuit for the sake of territorial claims over the region, as indigenous relocation projects were conducted by other circumpolar nations, including Denmark, the Soviet Union and the United States (Marcus 1995a).

Despite the state policy to relocate Inuit on the basis of sovereignty claims, colonial officials were in disagreement over where exactly the indigenous population should migrate. Many officials desired Inuit to live traditionally off the land (and in areas of strategical importance) so that they would not depend on the welfare state (Mitchell 1996), whereas others thought it was better to simply relocate all Inuit south so that they could assimilate into Canadian society²⁴ (Tester and Kulchyski 1994). Tester and Kulchyski (1994) explained:

With the traditional trapping economy in shambles, the population growing, caribou and other resources believed to be in decline, limited opportunities for wage employment, and the costs of northern administration rising, a small step in logic was all that was required for the administration to begin contemplating a desperate 'solution' — wholesale relocation to the South. (308)

In order to process the relocation of Inuit, the Committee on Eskimo²⁵ Affairs in the 1950s proposed the establishment of integration centres in the south (Tester and Kulchyski 1994). At these locations, it was suggested that Inuit would be taught about Canadian urban life: men were to be instructed as breadwinners of nuclear families while women would be relegated to the domestic sphere and children were expected to attend school (Tester and Kulchyski 1994).

²⁴ Another major factor informing the rationale for southern relocation was the tuberculosis crisis that plagued Inuit communities. The disease was spread by contact with *qallunaat*, and in order to mitigate its spread and deleterious effects, the government established a treatment program that involved relocating patients to a number of sanatoria in southern Canada (Tester and Kulchyski 1994; Wright 2014). Furthermore, *qallunaat* generally held an ethnocentric bias that the south was much more preferable to inhabit for Inuit than the north (Tester and Kulchyski 1994).

²⁵ The authour acknowledges the problematic use of this term and that Inuit is the preferred nomenclature for Canadian Inuit.

However, the push to relocate all Inuit to the south was not a universal sentiment among colonial officials, as some thought it was best to keep 'good' hunters in the Arctic while those who depended on welfare should be processed at urban centres in the south (Tester and Kulchyski 1994). Moreover, not everyone in the committee were consumed with assimilationist²⁶ ideation. For example, Commissioner Nicholson once declared that "those Eskimos who must be moved should be kept together after their arrival in the south, to help them preserve their identity" (as quoted in Tester and Kulchyski 1994, 315). This was in stark contrast to the perspective of others, such as Bishop Marsh, who argued that Inuit had inaccurate ideas regarding the south, and that they should not be given the agency in determining where they could live (Tester and Kulchyski 1994).

The Arctic relocation programs of Inuit clearly illustrate a particular level of paternalism and ethnocentrism in the decision making processes of colonial officials. Furthermore, a careful analysis of the motivations for the programs demonstrate that despite the official rhetoric, colonial administrators were more concerned about maintaining territorial boundaries and the health of *qallunaat* over the welfare of Inuit. As discussed, welfare has been described as a modern feature of capitalist societies used as an insurance policy to repel revolutionary furore; in a sense, it is a symptom of the failings of the capitalist mode of production. However, welfare also served a number of other purposes as it was deployed in the Canadian Arctic. Firstly, it was used out of shame in response to international criticism (Tester

²⁶ Settler colonialism was argued by Wolfe (1994) to be informed by a logic of assimilation, which entailed the erasure of indigeneity through a variety of means. Please refer to Wolfe (1994) for further reading on the subject.

and Kulchyski 1994). Secondly, in conjunction with the efforts of relocating Inuit by state administrators, it was employed as a means to assert Canadian sovereignty where most settlers were unwilling to do so. Thus, welfare programs as they were deployed in the Arctic took on new dimensions based on the territorial demands on the state. Because of the exceptional nature of the Arctic largely due to the form and function of water in the region, Inuit were deployed in the place of white settlers in order to 'colonise' the north.

Even at the Turning of the Tide

Councils

In an effort to 'develop' and 'modernise' the Arctic in the mid twentieth century, the Canadian government sought to establish local councils for Inuit in order to address community needs. The councils were to be constructed in a manner that would 'correspond to the non-Inuit ideal of liberal democratic and responsible government' (Tester and Kulchyski, 345). Arctic councils included *qallunaat* as participating members because bureaucrats believed Inuit were incapable of managing their own affairs (Tester and Kulchyski 1994). This sentiment was reflected during the tenth meeting of the Committee on Eskimo Affairs in 1959 — a historic occasion at which Inuit were granted federal representation for the first time — when it was argued by one of the Inuit leaders that indigenous 'representatives were often obliged to sit back and listen to others' (345) at the local councils (Tester and Kulchyski 1994). Thus, it was clear that while state officials were willing to

relinquish some local authority to indigenous communities, their intentions were clearly informed by paternalistic and racist suppositions.

However, the establishment of councils in the Canadian Arctic was not unanimously embraced by *qallunaat* or Inuit. For one, their formation agitated many *qallunaat* residents. A primary reason for this was because councils disrupted the existing power structure of the community that favoured white colonial power (Tester and Kulchyski 1994). For Inuit, the reception of councils was muted: although there was general acceptance of the idea, its implementation was a slow process and councils were given no substantial power, which ‘undoubtedly contributed to a lack of interest on part of Inuit’ (Tester and Kulchyski 1994, 355).

Tester and Kulchyski (1994) continued:

There was clearly little recognition that Inuit might have a different model of decision-making — that leadership might be defined using different criteria, that a spokesperson might be expected to represent and respect that view of others and to build consensus rather than direct and order people, or make decisions without first achieving consensus. (356)

Evidently, there was little consultation by state actors with Inuit as it related to the desired means of decision-making. Inuit were expected to adopt Western values as part of the Canadian state’s attempt at ‘modernising’ the north. However, by virtue of the cost-cutting mentality of government officials and their desire to outsource the services they provided, Inuit began to enjoy an increased, albeit limited, level of agency and autonomy, which provided avenues for Inuit resistance.

They will have Nunavut

As demonstrated earlier, early northern governance was paternalistic in nature, as local councils were generally ignored unless they reiterated the views and opinions of colonial administrators (Minority Rights Group 1994; Tester and Kulchyski 1994). However, with the discovery of oil deposits in Alaska and the Mackenzie Valley, Inuit became increasingly aware of the major decisions being made by *qallunaat* that would impact their communities, which generated the desire for greater indigenous agency (Minority Rights Group 1994).

It was only a matter of time before Inuit perceived that a comprehensive settlement with the Canadian state was necessary. The realisation became painfully apparent when in 1969, Prime Minister Pierre Trudeau introduced a White Paper which would have effectively extinguished the collective rights of indigenous communities (Arnold 2012). Consequently, Inuit began to mobilise around the case for a land claims agreement of the Arctic (Minority Rights Group 1994; Wright 2014). Canadian Inuit collaborated on the establishment of the Committee for Original People's Entitlement (COPE) in 1969 and the Inuit Tapirisat of Canada (ITC) in 1971 (Minority Rights Group 1994; Mitchell 1996). These groups were founded under the presumption that the regional Inuit-based organisations could influence the nation state (Minority Rights Group 1994). The COPE and ITC began to formulate a case based on the fact that they had never relinquished their sovereignty, but by giving up their title they were eligible to various forms of compensation, ranging from cash payouts and land use rights (Minority Rights Group 1994). However, what was

ostentatiously absent from their proposal was the demand for political autonomy (Minority Rights Group 1994).

As events unfolded in the James Bay and Northern Quebec region in the mid 1970s²⁷, as well as the Dene Declaration of 1975²⁸, many Inuit began to realise that the case COPE and ITC were proposing was insufficient and that some political autonomy had to be negotiated (Minority Rights Group 1994). Yet, for many Inuit organisers, it became apparent that the demand for complete autonomy was perhaps unrealistic, given the sociopolitical context and the economic and military supremacy of the settler colonial state (Mitchell 1996). Consequently, Inuit pursued claims that reflected this political reality by negotiating with the understanding that they wielded little power over the Canadian state and international corporate interests (Mitchell 1996).

Thus, after decades of negotiation, both Inuit negotiators and the federal government agreed to the establishment of Nunavut in 1999 as a new regional polity (Wright 2014). While Inuit were given their own regional system of government, they were granted partial political and economic autonomy (Mitchell 1996; Wright 2014). While this development signalled the establishment of indigenous authority over the region, Inuit were restrained to a certain extent over

²⁷ See Minority Rights Group (1994), Mitchell (1996) and Wright (2014) for a description of events surrounding the James Bay and Northern Quebec Agreement.

²⁸ The Dene Nation of the Northwest Territories issued the Dene Declaration in 1975, which called for complete cultural and political autonomy (Minority Rights Group 1994).

their capacity to respond to the challenges²⁹ they faced. Nevertheless, Inuit have been able to achieve significant accomplishments, which will be discussed in the next chapter.

Conclusion

This chapter has outlined how Canadian Inuit have been subjected to a process of colonisation as they adjusted to a new mode of production. It described how *qallunaat* whalers and the HBC influenced indigenous communities through trade and other forms of contact. Yet, while *qallunaat* maintained only marginal contact with Inuit largely due to the conditions of the Arctic, they nonetheless aided in a shift in the Inuit economy, which consequently produced metabolic rifts. The chapter then described how Inuit were eventually tied to the Arctic fur trade and endured the expansion of colonialism in the mid-nineteenth century. From this process, Inuit endured a series of relocations, predominantly for the purpose of asserting settler colonial sovereignty over the region. The chief reason for this development was because of the perceived severity of the environment by *qallunaat* settlers, especially as it related to the extent of Arctic snow and ice, and the freezing temperatures that helped maintain them. Because Inuit were needed in the Arctic for the purpose of national sovereignty, Inuit possessed unique political potential, which they exercised leading to the establishment of Nunavut. The next chapter will explore how Inuit are grappling with climate change and how climate change is

²⁹ Many of the challenges Inuit face stem from a legacy of colonialism and state neglect, which include: inadequate housing, ozone depletion, the Arctic accumulation of persistent pollutants from other parts of the world and crises related to health care and suicide (Wright 2014).

influencing capitalist expansion in the context of their successes in achieving limited forms of political sovereignty.

Chapter Five: Climate Change and the Double

Movement in the Arctic

As illustrated in the previous chapter, contact with *qallunaat* and the legacy of colonialism and capitalism has not only dramatically transformed the indigenous mode of production of Inuit, it also produced long-standing deleterious effects on their sociocultural and mental wellbeing. Despite this historical, collective trauma, Inuit have managed to acquire political semi-autonomy through decades of advocacy and campaigning in part due to the special status they held as it relates to the need of the Canadian state to establish national sovereignty over the region. Yet, as this chapter will reveal, despite these gains, Inuit are threatened by the effects of climate change that may eclipse the ordeals they had to endure in the past.

What happens in the Arctic is relevant to everyone, Inuit or not. While it is true that climate change has already started to affect ecosystems around the world, it is the Arctic where we can observe some of the most radical geophysical and hydrological changes induced by the phenomenon. Accordingly, the region in a sense functions as a barometer for the health of the biosphere. Inuit must be heeded not only because *qallunaat* were responsible for the legacy of colonialism in the region, but because they are now experiencing rapid and sustained climate change firsthand: their struggles are but a prelude for the rest of the planet. Furthermore, because of the exceptional nature of the region, we are able to discern two possible scenarios that may be applicable to other parts of the world in the course of time.

Firstly, because of climate change, the Arctic is beginning to produce more opportunities for capitalist accumulation (Medalye and Foster 2012). Alternatively, because of the political capital Inuit possess in the region, they are able to nurture their unique indigenous ontology, which offers the rest of humanity an alternative worldview that may aid us in averting the more egregious consequences of perceiving the other as expendable and exploitable.

Consequently, the question of how capital and climate change can be effectively challenged will be addressed in this chapter. Polanyi's ([1944] 2001) double movement will be explored with respect to how the Inuit Circumpolar Council is able to achieve political and economic autonomy, while the legal battle fought by Clyde River residents against seismic testing in their community will offer us an example of Arctic grassroots resistance towards capitalist accumulation. The double movement is a useful concept because it offers hope by demonstrating how societies respond to rounds of accumulation by dispossession.

This chapter will begin with a discussion of how climate change is affecting the Arctic and the ramifications the effects have on Inuit communities. It will then explore how climate change is opening up opportunities for capitalist expansion in the region predominantly through the melting of sea ice. The chapter will then briefly describe the concept of Inuit Qaujimajatuqangit, or Inuit indigenous knowledge, before describing establishment of the Inuit Circumpolar Council and the Clyde River legal battle against seismic testing as examples of the push towards socioecological protections regarding the double movement.

Inuit, Climate Change and the Arctic

Inuit, like other indigenous groups in Canada, remain intimately connected to the natural world for the purpose of obtaining medicine, transportation, hunting and gathering, as well as a variety of sociocultural and spiritual functions (Downing and Cuerrier 2011). Consequently, as the ecosystem degrades due to industrial processes and changes to the climate, aboriginal communities in turn are likely to experience increased social, economic, emotional and spiritual hardship, leading to a crisis in indigenous identity and wellbeing (Downing and Cuerrier 2011). Already, Inuit are observing remarkable changes to their environment that have profound implications for both wildlife and northern communities (Nunavut Tunngavik Incorporated 2005; Nunavut Tunngavik Incorporated 2001; Bates et al. 2008).

Ice and water, wind and weather

Climate change-induced impacts on the lives of Inuit are anticipated to be consequential. While annual precipitation and water vapour in the atmosphere is increasing, snow cover and ice thickness is decreasing (Bates et al. 2008), creating a number of threats to the existing way of life in the region, and making vehicular travel and hunting over it much more treacherous (Nunavut Tunngavik Incorporated 2001; Nunavut Tunngavik Incorporated 2005; Ford 2009; Government of Nunavut 2011). Accordingly, interactions between Nunavut communities are expected to decrease due to the predicted decrease in snow cover and sea ice, limiting the

transportation capability of indigenous communities (Nunavut Tunngavik Incorporated 2005). Further, an increase in mortality and injury is expected to rise. For example, hunting and travelling accidents, such as falling through thin ice or drifting off into the open sea while hunting on ice floes, is expected to become more common (Ford 2009). As a result of the risks brought upon by climate change, Inuit are increasingly less likely to hunt and be physically active while on the land (Downing and Cuerrier 2011).

As the majority of streams in the Arctic are dependent on spring melt-water, they only flow during the short thaw period (French and Slaymaker 1993). Thus, it is critical that the Arctic receives adequate precipitation in the form of snow in order to sustain its ponds and lakes (Medeiros et al. 2017). If areas within the Arctic dry out due to lower snowfall, significant desiccation of the earth is likely to occur (Abnizova and Young 2010; Bouchard et al. 2013). This is because as the permafrost thaws, water will be drawn lower into the ground (Bates et al. 2008). Already observers have noted how water levels throughout the Canadian Arctic have lowered, across lakes, rivers and coasts within the region (Nunavut Tunngavik Incorporated 2001; Nunavut Tunngavik Incorporated 2005; Nickels et al. 2005). This is due to the melting of glaciers and permafrost thawing, which not only means a decrease in water flow along waterway networks, but also an increase in the level of sediment accumulation. As the level of sedimentation increases and riverine flow decreases, Arctic biota are expected to be negatively impacted, which will harm Inuit who are reliant upon such species (Bates et al. 2008; Medeiros et al. 2017). Furthermore, for Inuit, lower water levels, in concert with 'changes in river ice

conditions, run-off, [and] flow regimes... [will likely] impede access to important fishing areas' (Medeiros et al. 2017), further impacting the indigenous community.

The expected changes to the Arctic's hydrological processes will also have a significant effect on the drinking water supply of Inuit. Many residents in the Arctic usually consume untreated water from natural sources, such as streams, lakes, snow and ice (Nickels et al. 2005; Martin et al. 2007). Consequently, reductions in snowfall and spring melt-water impacts the availability of adequate water supplies for safe drinking (Medeiros et al. 2017). Furthermore, as permafrost thaw occurs, water infiltrates deeper layers of the earth, which lengthens the thaw period, increasing the vegetation of the surface and reducing the water flow of the surface (Wrona et al. 2016). This phenomenon will likely contribute to shoreline degradation, thaw slumps (comparable to landslides) and the introduction of vegetation and soil into aquatic systems (Government of Nunavut 2011; Wrona et al. 2016; Bring et al. 2016). Furthermore, as the Arctic experiences more droughts and floods, the risk of diarrhoeal outbreaks is expected to rise for Inuit communities due to contamination of water sources (Downing and Cuerrier 2011).

The alteration of hydrological processes in the Arctic due to climate change is also expected to expedite the flow of persistent pollutants into the region (Bates et al. 2008). Accordingly, contamination of water sources is expected to increase 'with the northward movement of species and related diseases, and via sea-water contamination of groundwater reserves resulting from sea-level rise' (Bates et al. 2008, 108). The tragic nature of this phenomenon is that the pollutants are the

result of metabolic rifts engendered through capital accumulation in other parts of the world, as reflected in Rachel Carson's *Silent Spring*, mentioned in Chapter Three.

Nunavut settlements themselves already are enduring challenges related to the supply of adequate freshwater for their inhabitants. Most houses in the territory experience some degree of water shortage, whether it be through inadequate household tanks or 'over-burdened pumping stations' (Medeiros et al. 2017, 640). In fact, the majority of settlements in Nunavut depend upon freshwater to be delivered by truck (Medeiros et al. 2017), and in Coral Harbour, many households have reported that they have experienced water shortages at least once per week (Daley et al. 2014). Indeed, Canadian Arctic communities are currently experiencing a significant water crisis both due to poor planning and infrastructure as well as 'legacy contamination from past projects, localized development pressure from resource industries, and community expansion and development' (Medeiros et al. 2017, 641), compounded by the deleterious effects brought on by climate change.

Indigenous communities in the Canadian Arctic remain reliant upon indigenous knowledge of weather patterns and their environment. Inuit observers have noted for years how wind patterns in the Arctic are shifting, and that heavier, more dangerous winds have become the norm (Nunavut Tunngavik Incorporated 2001; Nunavut Tunngavik Incorporated 2005; Nickels et al. 2005; Ford 2009). Furthermore, changes in wind patterns are reducing the level of terrestrial snowfall,

which is hampering the capacity for Inuit to build igloos, increasing the difficulty of travel by snowshoe and snowmobile and disrupting the capacity of Inuit to discern navigational markers (Downing and Cuerrier 2011). Consequently, changes to wind patterns due to climate change are making it difficult, if not impossible in some cases for Inuit to traditionally use their land (Downing and Cuerrier 2011). This is because visual markers Inuit rely upon to predict weather are more difficult to read, while it is more difficult to accurately identify dangerous ice conditions (Ford 2009).

Wildlife and hunting

Climate change is also inducing a plethora of changes to arctic flora and fauna, which have a direct impact on the wellbeing of Inuit. For example, caribou have altered their migration routes due to changes to the hydrological processes of rivers and sea ice (Nunavut Tunngavik Incorporated 2005), while some regions have reported a significant increase in the number of snow geese and ravens (Nunavut Tunngavik Incorporated 2001). With the loss of permafrost and glaciers, community members have reported growth in certain species of plants (Nunavut Tunngavik Incorporated 2001). Moss and shrubs have expanded significantly in the Arctic, displacing lichen, a food source significant to caribou (Downing and Cuerrier 2011). Consequently, caribou herds are anticipated to be negatively affected while black bears and some avian species may be drawn poleward as a result (Downing and Cuerrier 2011). Lastly, while new species may be drawn north due to climatic changes, many endemic species, such as caribou, seals and polar bears, are

predicted to be less healthy due to harsher environmental conditions, the spread of disease and increased competition (Downing and Cuerrier 2011). Accordingly, due to the rapid changes predicted by the Intergovernmental Panel on Climate Change, climate change is poised to produce rapid alterations to the Arctic that will likely overwhelm many endemic biota or drive them to extinction (Bates et al. 2008).

Because many Arctic species are declining in health, and changing in abundance, indigenous hunters are being negatively impacted in both their choice of suitable sites as well as which individual animals to hunt due to their diseased or frail conditions³⁰ (Downing and Cuerrier 2011). As a consequence, Inuit hunters are being forced to spend more time hunting in search of adequate game (Downing and Cuerrier 2011), making it more rare for indigenous communities to obtain traditional food (Government of Nunavut 2011). As hunting is of great significance to Inuit socioculturally, economically and nutritionally (Ford 2009), climate change is having a significant impact on all aspects of Inuit life.

Increasingly, because it is becoming more difficult to subsist by more traditional means, there is added pressure for Inuit to embrace the wage labour market (Nunavut Tunngavik Incorporated 2005). Consequently, there are increasingly fewer full-time traditional harvesters and seamstresses, which in turn means that there is less transfer of indigenous knowledge to Inuit youth (Nunavut Tunngavik Incorporated 2005). With a notable lack of employment opportunities in the

³⁰ Inuit hunters have observed that the taste of caribou has changed and that their hides have thinned. Inuit have also reported new concerns about pollutants and disease in meat (Nunavut Tunngavik Incorporated 2001).

Canadian Arctic, and a marked decline in the capacity to hunt, many Inuit are losing indigenous skills and knowledge and are concurrently becoming more reliant upon the state for support (Nunavut Tunngavik Incorporated 2005).

Lastly, the risk of the contamination and botulism of traditional fermented foods has been climbing due to the rise of temperatures in the Arctic (Parkinson and Butler 2005). Consequently, Inuit are less likely to eat traditional foods than before and more reliant on processed foods, contributing to the rise of metabolic diseases (Downing and Cuerrier 2011). This trend is further compounded by the fact that fresh produce is largely unobtainable due to how expensive it is on part of the remote nature of Arctic settlements and the dependency on optimal weather conditions for its transportation (Downing and Cuerrier 2011).

As the cryosphere melts, Inuit are being challenged with unpredictable weather and ice conditions, which is impacting how they are able to subsist and travel. Consequently, Inuit are beginning to experience a greater sense of disconnect, socially and ecologically, manifesting in the rising rates of addiction, suicide and mental health challenges (Downing and Cuerrier 2011). Consequently, these new conditions pose significant problems for Inuit, which are compelling them to make economic and political choices they might not otherwise choose, choices which ultimately facilitate capitalist accumulation.

Climate Change and the Double Movement in the Canadian Arctic

In the context of the Arctic, the two sides of the double movement are evident: the continuation of capitalist accumulation that seeks to extract resources from the region at the expense of both Inuit communities and the ecosystem, and the manifestation of indigenous resistance epitomised through the progressive accomplishments of the Inuit Circumpolar Council. Moreover, the movement towards socioecological protection is not limited to political organisations, but can arise from individual and community resistance, as in the legal case against seismic testing near the community of Clyde River, which will be discussed later in this chapter. However, what uniquely defines these struggles is that all of them are informed by a body of indigenous knowledge, a worldview that offers us an ontological alternative to the more destructive perspective that informs *qallunaat* society.

The ramifications of climate change on Inuit living in the Arctic are indeed extensive and disastrous, and it is worth reminding that it is no means a natural phenomenon. As melting of the cryosphere continues and ice diminishes as an obstacle to resource development, new opportunities for capitalist expansion emerge. Shipping, tourist and extractive industries all stand to benefit from the changes that are occurring in the north (Medalye and Foster 2012). Thus, the metabolic rifts engendered by global capitalism can contribute further to capital intensification by opening up regions that were previously inaccessible. In this sense climate change can enable a new form of accumulation by dispossession, or

what Johnson (2010) describes as accumulation by degradation: the process whereby nation states and corporations allow climate change to perform work for capital — the melting of the cryosphere — in order to accumulate wealth.

While it may be perceived that global markets are awash in oil, relatively inexpensive, accessible and easily secured conventional sources of oil are in a state of decline (Sherval 2015). This has raised energy security concerns among nation states, propelling the exploitation of novel sources, including shale deposits and deep seabeds (Sherval 2015). However, because of the considerable capital investments required for the exploration and extraction of unconventional oil sources, questions have been raised concerning the feasibility of these projects (Sherval 2015). While optimistic industry analysts believe that further technological innovations will facilitate more affordable means of recovering oil, others believe that such projects are unsustainable both due to political uncertainty and of their high costs, let alone their environmental risks (Sherval 2015). Nonetheless, because the Arctic could hold as much as one-fifth of the world's supply of untapped hydrocarbons and because of the growing insecurity of energy markets, it is likely that the spectre of oil projects will continue to dominate policy discussions concerning the region (Sherval 2015).

Climate change is also sustaining the interest of the Arctic for a number of nation states and industries. With the reduction of sea ice and the lengthening of summer-like maritime conditions, the region is becoming much more accessible, which opens up the possibilities for a dramatic increase in activity in the region, including

shipping, tourism, greater militarisation of geostrategic locations, and resource development (Bravo and Rees 2006; Johnson 2010; Ford et al. 2012; Medalye and Foster 2012). Longer ice-free sea conditions are also increasing the feasibility of deep sea oil extraction projects. Thus, as climate change progresses and sea ice diminishes, the Arctic will continue to receive sustained attention by circumpolar nations and the private sector.

State of accumulation

In order to capitalise on the increasing opportunities for capitalist exploitation in the Arctic, the Canadian state has increased its influence over the region. The role of the government in response to climate change in the Arctic, contrary to its rhetoric regarding northern indigenous communities, reflects the interests of capitalist expansion. This observation is most transparent in Canada's 'Northern Strategy,' a policy framework that was championed by the Harper administration (Medalye and Foster 2012). Canada's Northern Strategy has four major points of priority, including the exercise of Canadian sovereignty over the Arctic, the promotion of socioeconomic development, the protection of the region's environment³¹ and the enhancement of northern governance (Medalye and Foster 2012). However, a more critical analysis from Medalye and Foster (2012) suggest that the policy seeks to exploit the changing environment for the purpose of resource extraction. This task is accomplished by:

³¹ Thus, in a sense this policy framework reflects the longstanding view colonial administrators had for the Arctic: political control and the expansion of capital. However, the reference to environmental protection likely reflects a concession by the state in order to secure the support of indigenous communities.

publicly funding exploration and mapping of potential energy and mineral deposits; regulatory reform to smooth the process by which resource extraction gets underway; reskilling of the Northern workforce for the mining and extraction sectors; and establishing institutional mechanisms to ease the boom-and-bust nature of extractive economies on Northern communities. (Medalye and Foster 2012, 104)

As it related to northern indigenous communities, Medalye and Foster (2012) argue that the Northern Strategy aimed to 'reconfigure power relations by dispossessing communities of their natural resources and traditional knowledges, and establish welfare interventions to prevent resistance by displaced people' (104), thus introducing a more robust mechanism of colonisation of the Arctic in light of the transformations engendered by climate change.

One of the key platforms of the Northern Strategy is the economic development of the Arctic, which may include ancillary projects associated with extractive industries. While projects associated with the Alberta tar sands have been planned for years in southern Canada, including the Keystone XL, Trans Mountain and Northern Gateway pipelines, longstanding grassroots resistance has raised the question of their feasibility (Sherval 2015). In order to bypass southern Canadian political opposition, the Arctic Energy Gateway project has been proposed to direct diluted bitumen from the tar sands to communities that are favourable to resource development, such as Tuktoyaktuk and Churchill in order to facilitate trade with Asian and European markets (Sherval 2015). These predominantly indigenous communities in the Arctic are seen as favourable to the proposed pipeline because of the chronic issue of unemployment in the region (Sherval 2015). Sherval (2015)

speculated that the Arctic Energy Gateway may be advocated by federal and territorial leaders as a means of satisfying a crucial plank of the Northern Strategy.

Given the recent shift in Canadian politics with the election of the Liberal government in 2015, some may speculate that Arctic policy might markedly change, especially given Prime Minister Justin Trudeau's rhetoric on indigenous communities and the environment (Fitz-Morris 2015; Barrera 2018). However, it is reasonable to conclude that the Trudeau government will not substantially alter the policy direction established under the previous administration. Since the last federal election, the Liberal government has attempted to expedite Kinder Morgan's Trans Mountain pipeline through Alberta and British Columbia, among other sensitive energy extraction projects in Canada (Bernauer, Heller and Kulchyski 2018). In fact, Trudeau has even secured four and a half billion dollars in federal funding in order to financially secure the Trans Mountain pipeline despite the considerable resistance mounted from both grassroots activists and provincial politicians in British Columbia (Ljunggren, Hampton and McWilliams 2018). In practice, it is likely that Arctic policy will continue to focus on exploiting the region for opportunities of capital accumulation. As Medalye and Foster (2012) argue, this strategy:

reveals the truly apocalyptic logic of the capitalist state vis-à-vis climate change, whereby the melting and reduction of Arctic sea ice is understood as a new opportunity to extract more of the very resources that create climate change in the first place, while deepening Northern communities' dependency on the multinational extractive sector. (88)

Here, we witness the ruinous logic of capital as described by De Angelis (2004), that seeks new opportunities for capital accumulation even if it is at the expense of

the Arctic ecosystem and its inhabitants. It is equally self-destructive because 'the conflicting forces of accumulation and production eventually undermine the condition of the natural environment that capitalism relies on for the continued production of commodities and, for our purposes here, the very stability of the global climatic system' (Medalye and Foster 2012, 89). It is not possible to have a functional capitalist society with a profoundly dysfunctional global climate.

Arctic militarisation

According to Medalye and Foster (2012), one of the most prominent features of the Northern Strategy is the militarisation of the Arctic, which follows a trend established by other nation states. Militarisation is argued by some as critical to not only strengthen Canada's sovereignty claims over the region, but also to combat terrorism, criminal activity, and to provide jobs for Northern communities (Medalye and Foster 2012). However, as Medalye and Foster (2012) explain, there are problems with each of these justifications. Firstly, Canada has been historically inefficient in asserting sovereignty claims militarily against competing nations, such as Russia and the United States (Medalye and Foster 2012). Instead of relying on the threat of force, it is argued that Canada's best strategy is to settle any sovereignty issues diplomatically (Medalye and Foster 2012). Secondly, the Coast Guard and RCMP are much more effective at combating criminal activity than the military in the Arctic (Medalye and Foster 2012). Lastly, rather than entreating the government for jobs in the military, northern communities have been asking the state to provide

more robust search-and-rescue capabilities in light of the worsening weather conditions generated by climate change (Medalye and Foster 2012).

As a more credible explanation, the militarisation of the Arctic serves resource extraction projects by better securing them from both external and internal threats. Klare (2009) argues that the trend to militarise the resource industry stems from anxiety among policy makers regarding the availability of petroleum on the global market. Specifically, he asserts that policy makers, in light of increasing global competition for resources, are progressively pessimistic about whether or not sufficient petroleum supplies will be available to meet demand (Klare 2009). As a consequence of this resource-related anxiety, policymakers have been advocating for the militarisation of the extractive industry (Klare 2009).

Another persuasive explanation for this phenomenon, related to the anxiety of policymakers, is that militarisation better secures extractive sites from internal resistance (Medalye and Foster 2012). Because resource extraction entails a considerable degree of displacement of local communities, local resistance may mount, which can threaten the viability of such projects (Medalye and Foster 2012). Furthermore, as a component of the strategy to neutralise local opposition, Medalye and Foster (2012) argue that a revised welfare regime³² may be used in tandem in order to placate potentially adversarial communities.

³² Medalye and Foster (2012) argue that the Northern Strategy policy was designed with welfare provisions to curtail indigenous resistance from an expansion of resource development in the Arctic by mitigating the more negative consequences of poverty.

Turning the tide

For centuries, *qallunaat* have been impacting the Arctic and Inuit communities through a variety of means, whether it be through whaling, missionary activity, the implementation of relocation and welfare schemes, or trade. While some of the impacts are regarded by some as beneficial to Inuit, such as the introduction of firearms or whaleboats, other aspects of *qallunaat* contact were unquestionably negative, such as the boom and bust nature of the fur industry. Over the last several decades, Inuit have experienced a more pronounced form of colonialism, primarily through the deployment of welfare policies described in Chapter Four, which in conjunction with the increased military and industry presence in the Arctic, and coupled with the pronounced effects of climate change, have led to the calls for greater autonomy by Inuit. Since the 1970s, Inuit have begun to effectively resist and organise themselves in significant ways that challenge *qallunaat* dominance in the region and the ontology that underpins it. In this next segment, Polanyi's double movement will be explored as it concerns the Inuit Circumpolar Council before addressing Inuit Qaujimajatuqangit (IQ), or Inuit indigenous knowledge, and how it offers a sustainable philosophy that may serve us in better mitigating the crisis of climate change and capital accumulation.

Inuit Qaujimajatuqangit

Inuit Qaujimajatuqangit (IQ), or Inuit indigenous knowledge, serves as a useful point of departure from the *qallunaat* way of thinking and dividing the world. Inuit

Qaujimajatuqangit 'has been an important resource for Inuit in adapting to environmental change for thousands of years, both in guiding individual behavior and experience, as well as in shaping a collective understanding of life in relation to the land' (Johnson 2009, 14). It is embodied knowledge that emphasises the connectivity of the world and its inhabitants, human or otherwise. Counter to some of the tendencies in *qallunaat* science and the subject-object ontology that underpins the capitalist relationship to the environment, IQ stresses that 'nothing can stand alone, even in the interest of gaining an appreciation of the whole' (Tester and Irniq 2008, 49). Boundaries, in a sense, are thus arbitrary.

Inuit Qaujimajatuqangit is referred to as a living body, a reservoir of knowledge that extends far into the past, but also includes the present and future (Wenzel 2004). It is a system of knowledge that binds together how resources, tasks, actions, thoughts and social norms are organised (Wenzel 2004). Some of the principles that inform IQ include: *pijitsirniq* (utilising power for the service of others), *aajiiqatigiingniq* (consensus building and respect for difference), *piliriqatigiingniq* (cooperation towards a common purpose), and *avatimik kamattiarniq* (stewardship of nature), among others (Wenzel 2004). What is crucial about IQ is that the principles that it encompasses cannot be taken in isolation from one another; each principle of IQ informs the whole, which must be embraced and practiced together (Wenzel 2004).

While conducting ethnographic fieldwork of Inuit in or near the settlement of Clyde River, Wenzel (2004) witnessed a number of occasions how IQ was conducted in practice. In one example, a seal that was hunted appeared abnormal when the

hunters could inspect it more closely, which raised concerns among them concerning the seal's possible contamination by pollutants. They were advised to freeze the specimen for testing, but after it appeared as though testing would not actually occur, they approached their elders for advice. He was told to return the seal back to the location where it was hunted, which was accomplished shortly thereafter. When Wenzel (2004) asked why they bothered returning the animal, they informed him that it would have been disrespectful to do otherwise: the seal needed to return 'home,' which would communicate to the other seals that the Clyde River hunters were respectful to the animals.

Such an example shows how the principles of IQ can be practiced in an integrated manner. For instance, *ikpigusuttiarniq nirjutilimaanik* (respect for all wildlife), is demonstrated through the respect given to the seals of the Clyde River region, while *surattittailimaniq* (harvesting only what is necessary) is illustrated through the return of the seal to its former location as a symbolic act with the aim for the hunters to be perceived by the seals as not wasteful (Wenzel 2004). *Qaujimanilik* (respect for experience and knowledge) is exemplified through the advice given by elders that was acted upon, and *piliriqatigiingniq* (cooperation) was demonstrated by the effort made to maintain rapport with the seal community for the benefit of Clyde River (Wenzel 2004).

While the exploration of the principles of IQ can be illuminating and inspiring for a *qallunaat* audience, caution must be nonetheless heeded. Inuit worldview has been impacted by decades of repression and colonial rule by the Canadian state (Tester

and Irniq 2008). Furthermore, *qallunaat* academics and policy makers have continually distorted and decontextualised IQ, consciously or not, in order to suit their own specific goals. As a solution, Johnson (2009) calls on *qallunaat* to heed to Inuit deeply as authors of their system of knowledge. Accordingly, for Tester and Irniq (2008), exploring and developing IQ is a task that should be led by Inuit, and not *qallunaat*.

Nonetheless, *qallunaat* can learn from thinking and engaging with IQ and its refusal to understand problems or challenges in isolation. Rather than take certain concepts, such as the economy, as a separate structure, IQ compels one to consider how it is connected to politics, to social relations and to the environment among other things. Here, the means of embedding the economy to serve society is demonstrated. An implication of this line of thinking is that one cannot pursue unrestrained capitalistic accumulation of wealth precisely because it also entails the degradation of social and environmental worlds upon which communities rely. It compels people to think of the weight of the consequences of their actions and who they ultimately serve. Inuit Qaujimagatuqangit can thus contribute to an indigenous response to decades of colonial repression and climate change, representing the socioecological force of an Arctic double movement.

Inuit resistance and embedding the economy

As the more egregious repercussions of unrestrained capital accumulation, both through resource development projects and effects of climate change, as well as a

legacy of colonialism, degraded the Arctic ecosystem and challenged indigenous society, Inuit have sought pragmatic means of gaining greater autonomy over their communities. Among other significant milestones, the formation of the Inuit Circumpolar Council (ICC) serves as one of the most significant achievements to this goal.

The ICC was established in 1977 in Barrow, Alaska by Inupiaq Eben Hopson and other Inuit to consider how to respond to increasing assaults on the Arctic environment, Inuit traditions and their human rights by nation states and private interests (Krümmel 2009; Inuit Circumpolar Council Canada 2018a). The ICC would come to serve as a non-governmental organisation that endeavoured to represent the interests of Inuit throughout the circumpolar Arctic (Wilson 2017). For the Inuit advocates, founding the ICC was a means of securing greater political autonomy and economic development for all Inuit within the circumpolar Arctic region (Wilson and Smith 2011). The rise of the ICC occurred in the context of rising political activism by Inuit who advocated around the world to secure greater control over their own communities, eventually leading to the establishment of self-governing Nunavut in Canada in 1999 and indigenous home rule in Greenland in 2009 (Wilson 2017). The ICC strove to differentiate itself from other *qallunaat*-based institutions by cultivating an indigenous, holistic perspective that incorporated 'culture, politics, economics, and the land' (Wilson and Smith 2011, 913), reflecting the worldview of IQ.

The ICC has been instrumental in a number of important achievements for indigenous groups and Northern communities. The organisation actively participated through the United Nations in the drafting of the United Nations Declaration of the Rights of Indigenous Peoples (Wilson and Smith 2011; Wright 2014). The ICC has also played a crucial role in the deliberations the United Nations conducted regarding persistent pollutants in the Arctic in addition to its campaign regarding climate change (Shadian 2010; Wilson and Smith 2011). The ICC's climate change campaign included the drafting of policy recommendations to the Arctic Council, issuing communications that synthesised both scientific information and indigenous knowledge regarding how climate change is affecting the Arctic, and facilitating initiatives that held those most responsible for climate change accountable (Inuit Circumpolar Council Canada 2018b). For example, Sheila Watt-Cloutier submitted a petition, drawing on both IQ and *qallunaat*-based science, to the Inter-American Commission on Human Rights (Crowley and Fenge 2005). By framing climate change as a human rights issue for Inuit, the Canadian Inuk activist was nominated for the Nobel peace prize (Wilson and Smith 2011).

Needless to say, the ICC has been successful in advocating for Inuit and working to establish the notion that Inuit wellbeing and a healthy Arctic ecosystem are inseparable. For example, in a declaration regarding resource development, the ICC listed its requirements for projects, which included an emphasis on the integration of communities, households, the economy and the environment in a healthy manner, greater indigenous autonomy, and attention to the sustainability of a project given the importance of the ecosystem for Inuit (Wright 2014). In this

manner, the ICC performs as an agent of socioecological protection while facilitating economic activities that may support Inuit communities, thus in a way embedding the economy to serve society.

Nonetheless, while the ICC managed to retain a degree of unity over many of its campaigns, the organisation has diverging views in terms of how Inuit should respond to the issue of resource extraction and fiscal autonomy in light of the Arctic transformations induced by climate change (Wilson and Smith 2011). For example, Kuupik Kleist, the former premier of Greenland, has championed a resource development-friendly perspective, perceiving climate change as an opportunity for Inuit to secure greater economic autonomy³³ (Wilson and Smith 2011).

Despite the negative consequences climate change is contributing to the Arctic, some argue that the phenomenon will have some positive ramifications for Inuit communities. For example, with the decline of sea ice for greater parts of the year in Nunavut, the tourism season is expected to lengthen, allowing cruise ships to chart into areas that were previously inaccessible (Government of Nunavut 2011). Moreover, open Arctic waters also can lead to more shipping and industrial opportunities (Government of Nunavut 2011), meaning that some Nunavut communities may benefit economically, at least temporarily, under an increasingly

³³ Greenland was able to achieve political autonomy in 2009, but still retained considerable fiscal challenges (Wilson and Smith 2011). A major factor for this predicament is because while Greenland is rich in mineral resources, it is largely a revenue-starved country (Kuokkanen 2017). While acknowledging the deleterious effects of climate change on Greenland, Kleist saw the need for Inuit to embrace 'modernity' in order to achieve the goal of self-determination (Wilson and Smith 2011).

capitalist mode of production. Lastly, as the Arctic sea warms, new species of fish will likely migrate into the region, benefiting the fishery industry (Government of Nunavut 2011), again at least temporarily³⁴.

Opposed to the economic development perspective are the socioecological forces that incorporates IQ more deeply by centring both traditional Inuit social worlds and the environment. It is a view that 'grounds self-determination in a historical relationship with the land' (Wilson and Smith 2011, 920). Former Chair of the ICC, Aqqaluk Lyngé and Sheila Watt-Cloutier are both advocates of this position, urging more caution regarding resource extraction while appealing to more traditional understandings of the Inuit connection to the Arctic ecosystem as well as the experiences Inuit have had with colonialism (Wilson and Smith 2011). Lyngé has argued that if Inuit pursue resource development in the Arctic, as the *qallunaat* have done, the path will lead to their destruction (Wilson and Smith 2011).

Clearly, obtaining greater political and economic autonomy is a difficult task, especially as it means that Inuit must negotiate terms with more powerful Arctic nations, former colonial states, and corporate enterprises. These conditions have helped produce a variety of perspectives within the organisation about how best to pursue the task. However, what may be useful is the exploration of a more local or grassroots example socioecological forces in the Arctic: the legal case against seismic testing near Clyde River.

³⁴ It is speculated that with the introduction of new marine species, new parasites and predators will emerge (Government of Nunavut 2011) that may pose challenges to Inuit communities, the industry and the ecosystem.

Clyde River and the coalition with Greenpeace

Clyde River, a small Inuit community situated in Nunavut, was notified of prospective oil exploration via seismic testing³⁵ by an international consortium in 2011 (Skura 2015a). Initially, Jerry Natanine, the mayor of the hamlet, and many of its inhabitants believed that oil exploration was an opportunity to bring jobs and wealth into the community (Skura 2015b; Lamb 2015). However, after consultation with elders, the community began to realise the environmental risks involved. The elders stated that decades ago, similar tests were conducted that killed off or deafened many aquatic animals (Skura 2015b). Such stories raised concerns amongst Inuit over the migration areas and calving grounds of the many animals they depended upon (The Canadian Press 2014).

In response, Natanine began to seek support from local Inuit associations in order to halt the testing. He was able to secure the backing of some organisations, but overall optimism was lacking because the case was expected to be a lengthy and expensive legal battle (Skura 2015b). Lawyers on the team made the legal case that the project should be rejected on account of a lack of adequate consultation (The Canadian Press 2014; CBC News 2014a, CBC News 2014b; Skura 2015a). A similar battle was won before in Lancaster Sound in 2010, before the Nunavut

³⁵ Seismic testing is 'an acoustic imaging technique that uses intense, low-frequency impulse signals generated near the sea surface and directed into the seabed' (1) in order to map seabed oil and gas reserves (McCauley et al. 2017). Seismic testing has been demonstrated to negatively impact zooplankton, with the potential to negatively affect other marine life (McCauley et al. 2017).

Court of Appeal, which had judges familiar with indigenous traditional knowledge (CBC News 2014b) and the importance of marine biota to Inuit. What made the situation different in the case of Clyde River was that the appellants had to deal with the federal court system rather than the Nunavut courts and, crucially, federal judges unfamiliar with indigenous traditional knowledge (CBC News 2014b).

Eventually, the Federal Court of Appeal rejected the Clyde River case, which forced the appellants to appeal to the Supreme Court (Skura 2015a). Those involved in the case were becoming exhausted with the legal wrangling, which compelled Natanine to appeal to Greenpeace for support (Skura 2015b). The coalition with Greenpeace was seen as controversial because the environmental advocacy group was involved in the 1970s and 1980s in a campaign to stop the seal fur hunt in Labrador, which greatly impacted the industry and consequently Inuit livelihoods (Skura 2015b). Many Inuit were angry at Greenpeace, but after the organisation issued an apology to the indigenous community Natanine saw them as potential allies in their fight to stop the consortium (Skura 2015b). Once Greenpeace joined the coalition, new revenue, support and public awareness aided the cause of the Clyde River appellants, which ultimately culminated in a Supreme Court victory on the grounds that the Inuit were not adequately consulted (Weilgart 2017). Inuit were generally suspicious and reluctant to embrace Greenpeace at first, but after meeting the activists, they began to see that they had much more in common, compelling one Inuk to remark that 'they love animals as we do' (as quoted in Skura 2015b).

From this example, socioecological forces related to the double movement is expressed eloquently as it encompasses IQ. Initially, the extractive consortium was welcomed because it offered the prospect of jobs and revenue to the income-strapped community of Clyde River. Those who would represent the interests of capitalist expansion, especially at the expense of the ecosystem, held considerable influence over indigenous autonomy because of the dire need for revenue in the community. However, after respectfully consulting their elders, Clyde River residents became aware of the ecological ramifications of the testing, which turned local opinion. Through perseverance and the process of coalition-building, the appellants of the hamlet were able to successfully appeal the project. Thus, Inuit were able to, in part, embed the economy to serve the Inuit community by refusing to capitulate to the consortium, representing a clear move towards greater socioecological protection.

Furthermore, through careful dialogue with Greenpeace organisers, they began to see that they were mutually aligned, sharing similar values in regard to the ecosystem. This is an important development, as it demonstrates indigenous leadership exemplified in IQ principles. For example, *piliriqatigiingniq* and *aajiiqatigiingniq* are both clearly illustrated as the alliance between the Clyde River appellants and Greenpeace signified an effort to build consensus, respect differences and work together towards a common goal. Thus, the case of Clyde River thus offers an example of how people can resist the more egregious forms of capital accumulation while practicing some of the values that are needed in order to truly mitigate climate change and build a sustainable future.

Conclusion

This chapter has demonstrated how Inuit and the Arctic ecosystem is being affected by climate change. Inuit are being significantly harmed due to the ecological degradation the phenomenon engenders. Importantly, the two sides of Polanyi's double movement can be discerned. On the one hand, because of the effects of climate change, nation states, multinational corporations and elements within indigenous governmental bodies are championing intensifying economic liberalism and militarised extractive projects in the Arctic. On the other hand, within a number of governmental bodies, indigenous-led socioecological forces are evident. Informed by indigenous ontology, these movements are escalating, as evidenced through the accomplishments of the ICC as well as the successful legal battle won by residents of Clyde River. This chapter illustrates that indeed effective resistance can be sustained, while offering us an alternative philosophical framework to help avert the more destructive aspects of capitalist ontology.

Afterword

Some things are so big we cannot see them. Privilege, whether it be by race, gender, class, cultural upbringing, or religion, those who wield the most are often oblivious to how much they wield in comparison to others. Even though Western societies tend to champion the notion of liberalism, gross inequities nonetheless persist mainly because privilege is rarely acknowledged. This is in part because domination and capitalist ontology is predicated on the privileging of some and the subject-object divide. The ramifications of this worldview, as illustrated in part in this thesis, is that segments of society and the environment are perceived as expendable and exploitable. The consequences of this sentiment is socioecological ruin.

This thesis has explored Marxist economic and ecological theory as it relates to the capitalist mode of production. In doing so, it has been demonstrated how capitalism is predicated on destructive rounds of accumulation by dispossession, engendering social disintegration and metabolic rifts. As a result, socioecological forces arise within society in order to counter these deleterious consequences. The centrality of water to life on this planet was then explored, especially in terms of how humans are dependent upon it, and how humans affect hydrological cycles. As a consequence of capitalist ontology, humans have produced the phenomenon of climate change.

An investigation was then conducted of regarding capitalism, capitalist ontology and colonialism in the Canadian Arctic. This was essential as the nature of ice and water in the region was instrumental in constraining the process of settlement by *qallunaat*. As a consequence, Inuit enjoyed regional demographic dominance, which bolstered their struggle to obtain greater indigenous autonomy. However, because of the nature of anthropogenic climate change, the Arctic is beginning to open up new avenues for capitalist accumulation, which threaten to constrain indigenous sovereignty through the degradation of the ecosystem. Thus, the double movement of the Arctic is discernible by the tension between resource extraction on the one hand and the development of an alternative indigenous ontology on the other. In this sense, the climate of the Arctic is critical in influencing the future of the Arctic: if the climate remains cold and stable, the socioecological forces supporting indigenous sovereignty is maintained. However, if the climate progressively becomes destabilised, the economic liberal forces for capitalist accumulation is favoured, even if it means the degradation of both northern communities and the ecosystem.

A profound reorientation of how we perceive our relationship with nature and other human beings in a non-hierarchical sense is necessary in order to avert environmental and social catastrophe. This new ontology has been demonstrated in IQ, which stresses a deep respect and connectivity with others, with animals and with nature. This philosophy must be honoured and adopted: we must stop seeing nature and other human beings as open to exploitation and degradation. We need to see that each interaction, each moment with other humans, animals, or the

environment, is precious and demands our protection, otherwise we will lose these gifts forever.

References

- Abnizova Anna, and Kathy L. Young. 2010. "Sustainability of High Arctic Ponds in a Polar Desert Environment." *Arctic* 63 (1):67–84. doi:10.14430/arctic648
- Althor, Glenn, James E. M. Watson, and Richard A. Fuller. 2016. "Global Mismatch between Greenhouse Gas Emissions and the Burden of Climate Change." *Scientific Reports* 6 (1): 20281. doi:10.1038/srep20281.
- Ansari, Abid A., Sarvajeet Singh Gill, Guy R. Lanza and Walter Rast. 2011. *Eutrophication Causes, Consequences and Control*. Dordrecht: Springer.
- Arnold, Samantha. 2012. "Constructing an Indigenous Nordicity: The 'New Partnership' and Canada's Northern Agenda." *International Studies Perspectives* 13(1): 105-120. doi:10.1111/j.1528-3585.2011.00455.x
- Artzy, Michal and Daniel Hillel. 1988. "A Defense of the Theory of Progressive Soil Salinization in Ancient Southern Mesopotamia." *Geoarchaeology* 3 (3): 235-238. <https://doi.org/10.1002/gea.3340030306>.
- Bailey, Ronald. 1992. "The Slave(ry) Trade and the Development of Capitalism in the United States: The Textile Industry in New England." In *The Atlantic Slave Trade: Effects on Economies, Societies, and Peoples in Africa, the Americas, and Europe*, edited by Joseph E. Inikori and Stanley L. Engerman, 205-246. Durham, N.C.: Duke University Press.
- Barrera, Jorge. 2018. "First Nations Leaders React With Caution to Justin Trudeau's Indigenous Rights Plan." CBC News, February 14, 2018. <https://www.cbc.ca/news/indigenous/first-nations-reaction-trudeau-indigenous-rights-plan-1.4536098>
- Bates, Bryson., Zbigniew W. Kundzewicz, Shaohong Wu, and Jean Palutikof, eds. 2008. *Climate Change and Water. Technical Paper of the Intergovernmental Panel on Climate Change*. Geneva: Intergovernmental Panel on Climate Change.
- Bernauer, Warren, Henry Heller, and Peter Kulchyski. 2018. "From Wallmapu to Nunatsiavut: The Criminalization of Indigenous Resistance." *Monthly Review* 69 (8): 33-40. doi: 10.14452/MR-069-08-2018-01_3
- Borras, Saturnino M., Jennifer C. Franco, Sergio Gómez, Cristóbal Kay, and Max Spoor. 2012. "Land Grabbing in Latin America and the Caribbean." *The Journal of Peasant Studies* 39 (3-4): 845-872.

- Bouchard, F., K. W. Turner, L. A. Macdonald, C. Deakin, H. White, N. Farquharson, A. S. Medeiros et al. 2013. "Vulnerability of Shallow Subarctic Lakes to Evaporate and Desiccate when Snowmelt Runoff is Low." *Geophysical Research Letters* 40 (23): 6112-6117. doi:10.1002/2013GL058635
- Bravo, Michael and Gareth Rees. 2006. "Cryo-Politics: Environmental Security and the Future of Arctic Navigation." *The Brown Journal of World Affairs* 13(1): 205-215. <https://www.jstor.org/stable/24590654>
- Bring, Arvid, Irina V. Fedorova, Yonas B. Dibike, Larry Hinzman, Johanna Mård, Jacob Sebastian Haugaard Mernild et al. 2016. "Arctic Terrestrial Hydrology: A Synthesis of Processes, Regional Effects, and Research Challenges." *Journal of Geophysical Research: Biogeosciences* 121 (3): 621-649. doi: 10.1002/2015JG003131
- Brovkin, Victor, Vladimir Petoukhov, Martin Claussen, Eva Bauer, David Archer, and Carlo Jaeger. 2009. "Geoengineering Climate by Stratospheric Sulfur Injections: Earth System Vulnerability to Technological Failure." *Climatic Change* 92 (3): 243-259. doi:10.1007/s10584-008-9490-1.
- The Canadian Press. 2014. "Ottawa Greenlights Arctic Offshore Seismic Tests Over Inuit Objections." *CBC News*, June 25, 2014. <http://www.cbc.ca/news/canada/north/ottawa-greenlights-arctic-offshore-seismic-tests-over-inuit-objections-1.2688040>
- CBC News. 2014a. "Nunavut Inuit Furious Over Seismic Testing Decision." *CBC News*, June 30, 2014. <http://www.cbc.ca/news/canada/north/nunavut-inuit-furious-over-seismic-testing-decision-1.2691720>
- CBC News. 2014b. "Clyde River May Have Uphill Battle To Block Seismic Testing." *CBC News*, August 1, 2014. <http://www.cbc.ca/news/canada/north/clyde-river-may-have-uphill-battle-to-block-seismic-testing-1.2725060>
- Chadwick, Robert. 2005. *First Civilizations: Ancient Mesopotamia and Ancient Egypt*. London: Equinox Publishing Ltd.
- Clapp, B. W. 1994. *An Environmental History of Britain Since the Industrial Revolution*. London: Longman.
- Crowley, Paul, and Terry Fenge. 2005. "Inuit Petition Inter-American Commission on Human Rights to Oppose Climate Change Caused by the United States of America." *Inuit Circumpolar Council Canada*. Updated December 7, 2005. <http://www.inuitcircumpolar.com/inuit-petition-inter-american-commission-on-human-rights-to-oppose-climate-change-caused-by-the-united-states-of-america.html>

- Daley, Kiley, Heather Castleden, Rob Jamieson, Chris Furgal, and Lorna Ell. 2014. "Municipal Water Quantities and Health in Nunavut Households: An Exploratory Case Study in Coral Harbour, Nunavut, Canada." *International Journal of Circumpolar Health* 73 (1):23843 doi:10.3402/ijch.v73.23843
- Damas, David. 1993. "Shifting Relations in the Administration of Inuit: The Hudson's Bay Company and the Canadian Government." *Études/Inuit/Studies* 17 (2): 5-28.
- Darity, William Jr. 1992. "British Industry and the West Indies Plantations." In *The Atlantic Slave Trade: Effects on Economies, Societies, and Peoples in Africa, the Americas, and Europe*, edited by Joseph E. Inikori and Stanley L. Engerman, 247-279. Durham, N.C.: Duke University Press.
- De Angelis, Massimo. 2004. "Separating the Doing and the Deed: Capital and the Continuous Character of Enclosures." *Historical Materialism* 12 (2):57-87. doi: 10.1163/1569206041551609
- Diamond, Jared M. 2005. *Collapse: How Societies Choose to Fail Or Succeed*. New York: N.Y.: Viking Press.
- Downing, Ashleigh, and Alain Cuerrier. 2011. "A Synthesis of the Impacts of Climate Change on the First Nations and Inuit of Canada." *Indian Journal of Traditional Knowledge* 10 (1):57-70. <http://nopr.niscair.res.in/handle/123456789/11066>
- Edenhofer, Ottmar, Ramón Pichs-Madruga, Youba Sokona, Ellie Farahani, Susanne Kadner, Kristin Seyboth, Anna Adler et al. 2014. *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge: Cambridge University Press.
- Engels, Frederick and Karl Heinrich Marx. 1978. *Karl Marx, Frederick Engels: Collected Works, Volume 10, Marx and Engels: 1849-1851*. New York, NY: International Publishers.
- Engels, Frederick, and Karl Heinrich Marx. 1988. *Karl Marx, Frederick Engels: Collected Works, Volume 30, Karl Marx: 1861-1863*. Translated by Ben Fowkes and Emilie Burns. London: Lawrence and Wishart.
- Fitz-Morris, James. 2015. "Justin Trudeau Tells Paris Climate Summit Canada Ready To Do More." *CBC News*, November 30, 2015. <https://www.cbc.ca/news/politics/trudeau-address-climate-change-paris-1.3343394>
- Ford, James. 2009. "Vulnerability of Inuit Food Systems to Food Insecurity as a Consequence of Climate Change: A Case Study from Igloolik, Nunavut."

Regional Environmental Change 9 (2): 83-100. doi:10.1007/s10113-008-0060-x

- Ford, James D., Kenyon C. Bolton, Jamal Shirley, Tristan Pearce, Martin Tremblay, and Michael Westlake. 2012. "Research on the Human Dimensions of Climate Change in Nunavut, Nunavik, and Nunatsiavut: A Literature Review and Gap Analysis." *Arctic* 65 (3): 289-304. <http://www.jstor.org/stable/41758936>
- Foster, Benjamin R., ed. 2001. *The Epic of Gilgamesh: A New Translation, Analogues, Criticism*. Translated by Benjamin R. Foster, Douglas Frayne, and Gary M. Beckman. New York, N.Y.: W. W. Norton and Company Inc.
- Foster, John Bellamy, Richard York, and Brett Clark. 2010. *The Ecological Rift : Capitalism's War on the Earth*. New York, N.Y.: Monthly Review Press.
- French, Hugh M., and Olav Slaymaker. 1993. *Canada's Cold Environments*. Montreal: McGill-Queens University Press.
- Government of Nunavut. 2011. "Upagiaqtavut: Climate Change Impacts and Adaptation in Nunavut." *Government of Nunavut*. Accessed September 19, 2017. http://climatechangenunavut.ca/sites/default/files/3154-315_climate_english_reduced_size_1_0.pdf
- Greene, Jack P., and Philip D. Morgan. 2009. *Atlantic History: A Critical Appraisal*. Oxford: Oxford University Press.
- Hage, Ghassan. 2017. *Is Racism an Environmental Threat?* Cambridge: Polity Press.
- Harvey, David. 2005. *The New Imperialism*. Oxford: Oxford University Press.
- Hill, Erica. 2013. "Archaeology and Animal Persons: Towards a Prehistory of Human-Animal Relations." *Environment and Society: Advances in Research* 4 (1): 117-136. doi:10.3167/ares.2013.040108.
- Houghton, J.T., L.G. Meira Filho, B.A. Callander, N. Harris, A. Kattenberg, and K. Maskell. 1996. *Climate Change 1995: The Science of Climate Change.* Intergovernmental Panel on Climate Change. Cambridge: Cambridge University Press.
- Inikori, Joseph E. 1992. "Slavery and the Revolution in Cotton Textile Production in England." In *The Atlantic Slave Trade: Effects on Economies, Societies, and Peoples in Africa, the Americas, and Europe*, edited by Joseph E. Inikori and Stanley L. Engerman, 145-182. Durham, N.C.: Duke University Press.

- Inuit Circumpolar Council Canada. 2018a. "Activities and Initiatives: Inuit Circumpolar Council Canada." *Inuit Circumpolar Council Canada*. Accessed August 1, 2018. <http://www.inuitcircumpolar.com/activities--initiatives.html>
- Inuit Circumpolar Council Canada. 2018b. "Climate Change." *Inuit Circumpolar Council Canada*. Accessed August 7, 2018. <http://www.inuitcircumpolar.com/climate-change.html>
- Ishiguro, Laura. 2016. "Northwestern North America (Canadian West) to 1900." In *The Routledge Handbook of the History of Settler Colonialism*, edited by Edward Cavanagh and Lorenzo Veracini, 125-138. Abingdon, Oxfordshire: Routledge.
- Jaffee, Daniel, and Soren Newman. 2013. "A More Perfect Commodity: Bottled Water, Global Accumulation, and Local Contestation." *Rural Sociology*, 78 (1): 1-28. doi:10.1111/j.1549-0831.2012.00095.x
- Johnson, Leigh. 2010. "The Fearful Symmetry of Arctic Climate Change: Accumulation by Degradation." *Environment and Planning D: Society and Space* 28 (5): 828-847. doi:10.1068/d9308
- Johnson, Noor. 2009. "Inuit Traditional Knowledge and the Politics of Adaptation: Broadening Conceptions of Agency in Climate Change Governance." Paper presented at the Amsterdam Conference on Earth System Governance, Amsterdam, December 3, 2009.
- de Jonge, Victor N., M. Elliott, and E. Orive. 2002. "Causes, Historical Development, Effects and Future Challenges of a Common Environmental Problem: Eutrophication." *Hydrobiologia* 475/476: 1-19. doi:10.20366418295.
- Kalant, Amelia. 2004. *National Identity and the Conflict at Oka: Native Belonging and Myths of Postcolonial Nationhood in Canada*. New York, N.Y.: Routledge.
- Klare, Michael T. 2009. "Petroleum Anxiety and the Militarization of Energy Security." In *Energy Security and Global Politics: The Militarization of Resource Management*, edited by Daniel Moran and James A. Russell, 39-61. London: Routledge.
- Klein, Naomi. 2017. *No Is Not Enough: Resisting Trump's Shock Politics and Winning the World We Need*. Chicago, I.L.: Hawmarket Books.
- Krümmel, Eva M. 2009. "The Circumpolar Inuit Health Summit: A Summary." *International Journal of Circumpolar Health* 68 (5): 509-518. doi: 10.3402/ijch.v68i5.17381

- Kuokkanen, Rauna. 2017. "To See What State We Are in': First Years of the Greenland Self-Government Act and the Pursuit of Inuit Sovereignty." *Ethnopolitics* 16 (2): 179-195. doi:10.1080/17449057.2015.1074393.
- Lamb, David Michael. 2015. "Clyde River, Nunavut, Takes On Oil Industry Over Seismic Testing." *CBC News*, March 30, 2015. <http://www.cbc.ca/news/canada/north/clyde-river-nunavut-takes-on-oil-industry-over-seismic-testing-1.3014742>
- Lazarus, Richard J. 2009. "Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future." *Cornell Law Review* 94 (5): 1153-1234. <http://scholarship.law.cornell.edu/clr/vol94/iss5/3>
- Ljunggren, David, Liz Hampton, and Gary McWilliams. 2018. "How Kinder Morgan Won a Billion-Dollar Bailout on Canada Pipeline." *Reuters*, May 30, 2018. <https://www.reuters.com/article/us-kinder-morgan-cn-strategy-insight/how-kinder-morgan-won-a-billion-dollar-bailout-on-canada-pipeline-idUSKCN1IV1B5>
- Lyons, Timothy, Christopher T. Reinhard, and Noah J. Planavsky. 2014. "The Rise of Oxygen in Earth's Early Ocean and Atmosphere." *Nature* 506: 307-315. doi: 10.1038/nature13068
- Makki, Fouad. 2014. "Development by Dispossession: Terra Nullius and the Social-Ecology of New Enclosures in Ethiopia." *Rural Sociology* 79 (1): 79-103. doi: 10.1111/ruso.12033
- Marcus, Alan R. 1995a. *Inuit Relocation Policies in Canada and Other Circumpolar Countries, 1925-60: A Report for the Royal Commission on Aboriginal Peoples*. 7466-10.1. Ottawa: Royal Commission on Aboriginal Peoples. <http://publications.gc.ca/site/eng/9.829888/publication.html>
- Marcus, Alan Rudolph. 1995b. *Relocating Eden: The Image and Politics of Inuit Exile in the Canadian Arctic*. Hanover, N.H.: University Press of New England.
- Marshall, Shawn. 2012. *The Cryosphere*. Princeton, N.J.: Princeton University Press.
- Martin Daniel, Diane Bélanger, Pierre Gosselin, Josée Brazeau, Chris Furgal, and Serge Déry. 2007. "Drinking Water and Potential Threats to Human Health in Nunavik: Adaptation Strategies Under Climate Change Conditions." *Arctic* 60 (2):195–202. doi:10.14430/arctic244
- Marx, Karl. (1867) 1976. *Capital: A Critique of Political Economy, Volume 1*. Translated by Ben Fowkes. London: Penguin Books.

- . (1894) 1981. *Capital: A Critique of Political Economy, Volume 3*. Translated by David Fernbach. London: Penguin Books.
- McCauley, Robert D., Ryan D. Day, Kerrie M. Swadling, Quinn P. Fitzgibbon, Reg A. Watson, and Jayson M. Semmens. 2017. "Widely Used Marine Seismic Survey Air Gun Operations Negatively Impact Zooplankton." *Nature Ecology and Evolution* 1 (0195): 1-8. doi: 10.1038/s41559-017-0195.
- Medalye, Jacqueline, and Ryan Foster. 2012. "Climate Change and the Capitalist State in the Canadian Arctic: Interrogating Canada's 'Northern Strategy'." *Studies in Political Economy* 90 (1):87-114. doi: 10.1080/19187033.2012.11674992
- Mitchell, Marybelle. 1996. *From Talking Chiefs to a Native Corporate Élite: The Birth of Class and Nationalism among Canadian Inuit*. Montreal: McGill-Queen's University Press.
- Mitchell, Stephen. 2004. *Gilgamesh: A New English Version*. New York, N.Y.: Free Press.
- Moore, Jason W. 2017. "The Capitalocene, Part I: On the Nature and Origins of our Ecological Crisis." *The Journal of Peasant Studies* 44 (3): 594-630. doi: 10.1080/03066150.2016.1235036
- Nickels, S., C. Furgal, M. Buell, H. Moquin. 2005. *Unikkaaqatigiit: Putting the Human Face on Climate Change: Perspectives from Inuit in Canada*. Ottawa: Joint publication of Inuit Tapiriit Kanatami, Nasivvik Centre for Inuit Health and Changing Environments at Université Laval and the Ajunnginiq Centre at the National Aboriginal Health Organization. <https://www.itk.ca/wp-content/uploads/2016/07/Nunavut.pdf>
- Nunavut Tunngavik Incorporated. 2001. *Elder's Conference on Climate Change: Final Report*. Nunavut Tunngavik Incorporated. Accessed September 18, 2017. <http://www.tunngavik.com/documents/publications/2001-03-21-Elders-Report-on-Climate-Change-English.pdf>
- Nunavut Tunngavik Incorporated. 2005. *What if the Winter Doesn't Come? Inuit Perspectives on Climate Change Adaptation Challenges in Nunavut: Summary Workshop Report, March 15 - 17, 2005, Iqaluit*. Nunavut Tunngavik Incorporated. Accessed September 30, 2017. <http://www.tunngavik.com/documents/publications/2005-03-15-Inuit-Perspectives-on-Climate-Change-Adaptation-Challenges-in-Nunavut-English.pdf>
- Parkinson, Alan J., and Jay C. Butler. 2005. "Potential Impacts of Climate Change on Infectious Diseases in the Arctic." *International Journal of Circumpolar Health* 64 (5):478-486. doi: 10.3402/ijch.v64i5.18029

- Pachauri, R. K., and L. A. Meyer (eds.). 2014. *Climate Change 2014: Synthesis Report: Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Geneva: Intergovernmental Panel on Climate Change.
- Parry, Tyler D. 2017. "Slave Trade, 1450-1770 CE." In *The Sea in World History: Exploration, Travel, and Trade: Volume One: Ancient Egypt Through the First Global Age*, edited by Stephen K. Stein, 296-299. Santa Barbara, C.A.: ABC-CLIO.
- Polanyi, Karl. (1944) 2001. *The Great Transformation : The Political and Economic Origins of our Time*. Boston, MA: Beacon Press.
- Ray, Arthur J. 1990. *The Canadian Fur Trade in the Industrial Age*. Toronto: University of Toronto Press.
- Ray, Arthur J. 2009. "Hudson's Bay Company." Edited by Nathan Coschi, Leanna Fong, and Sasha Yusufali. *The Canadian Encyclopedia*. Last modified June 22, 2015. <http://thecanadianencyclopedia.ca/en/article/hudsons-bay-company/>
- Redman, Charles L. 1978. *The Rise of Civilization: From Early Farmers to Urban Society in the Ancient Near East*. San Francisco, C.A.: W. H. Freeman.
- Roberts, Adrienne. 2008. "Privatizing Social Reproduction: The Primitive Accumulation of Water in an Era of Neoliberalism." *Antipode* 40 (4): 535-560. <https://doi.org/10.1111/j.1467-8330.2008.00623.x>.
- Sevilla-Buitrago, Alvaro. 2015. "Capitalist Formations of Enclosure: Space and the Extinction of the Commons." *Antipode* 47 (4): 999-1020. doi: 10.1111/anti.12143
- Sherval, Meg. 2015. "Canada's Oil Sands: The Mark of a New 'Oil Age' Or a Potential Threat to Arctic Security?" *The Extractive Industries and Society* 2 (2): 225-236. doi:10.1016/j.exis.2015.01.011
- Skura, Elyse. 2015a. "Clyde River Wants Supreme Court To Weigh In on Seismic Testing." *CBC News*, October 16, 2015. <http://www.cbc.ca/news/canada/north/clyde-river-wants-supreme-court-to-weigh-in-on-seismic-testing-1.3274901>
- Skura, Elyse. 2015b. "Clyde River Hunters Laud 'Surprising' Greenpeace Partnership." *CBC News*, November 16, 2015. <http://www.cbc.ca/news/canada/north/greenpeace-clyde-river-nunavut-seismic-testing-battle-1.3318691>

- Solnit, Rebecca. 2013. "Why Is It So Hard To Grasp Climate Change?" *Salon*. October 7, 2013. https://www.salon.com/2013/10/07/why_is_it_so_hard_to_grasp_climate_change_partner/
- Solow, Barbara L., ed. 1991. *Slavery and the Rise of the Atlantic System*. Cambridge: Cambridge University Press.
- Spronk, Susan and Jeffery R. Webber. 2007. "Struggles Against Accumulation by Dispossession in Bolivia: The Political Economy of Natural Resource Contention." *Latin American Perspectives* 34 (2): 31-47. doi: 10.1177/0094582X06298748.
- Stevenson, Lisa. 2012. "The Psychic Life of Biopolitics: Survival, Cooperation, and Inuit Community." *American Ethnologist* 39 (3):592-613. doi: 10.1111/j.1548-1425.2012.01383.x
- Stocker, Thomas F., Dahe Qin, Gian-Kasper Plattner, Alexander Nauels, Melinda M. B. Tignor, Yu Xia, Simon K. Allen, Vincent Bex, Judith Boschung, and Pauline M. Midgley, eds. 2013. *Climate Change 2013: The Physical Science Basis: Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge: Cambridge University Press.
- Sussman, Henry. 2012. *Impasses of the Post-Global: Theory in the Era of Climate Change, Volume Two*. Ann Arbor, M.I.: Open Humanities Press.
- Suzuki, David T. 2007. *The Sacred Balance: Rediscovering our Place in Nature*, edited by Adrienne Mason, and Amanda McConnell. Vancouver: Greystone Books.
- Tagaq, Tanya. 2016. "Retribution." MP3 audio. Track 2 on *Retribution*. Six Shooter Records Incorporated.
- Tester, Frank James, and Paule McNicoll. 2006. "'Why Don't They Get It?' Talk of Medicine as Science. St Luke's Hospital, Panniqtuuq, Baffin Island." *Social History of Medicine* 19(1): 87-106.
- Tester, Frank James, and Peter Irniq. 2008. "Inuit Qaujimagatuqangit: Social History, Politics and the Practice of Resistance." *Arctic* 61(1): 48-61. <https://www.jstor.org/stable/40513356>
- Tester, Frank James, and Peter Kulchyski. 1994. *Tammarniit (Mistakes): Inuit Relocation in the Eastern Arctic, 1939-63*. Vancouver: UBC Press.
- Tranter, Bruce, and Kate Booth. 2015. "Scepticism in a Changing Climate: A Cross-National Study." *Global Environmental Change* 33: 154-164. doi: 10.1016/j.gloenvcha.2015.05.003.

- Tvedt, Terje. 2016. *Water and Society: Changing Perceptions of Societal and Historical Development*. London: I.B. Tauris.
- Vitello, Paul. 2013. "Joseph Farman, 82, is Dead; Discovered Ozone Hole." *New York Times*. May 18, 2013. <https://www.nytimes.com/2013/05/19/science/earth/joseph-farman-82-is-dead-discovered-ozone-hole.html>
- Weilgart, Lindy. 2017. "Seismic Testing for Oil Extremely Harmful to Marine Life." *The Star*. August 14, 2017. <https://www.thestar.com/opinion/commentary/2017/08/14/seismic-testing-for-oil-extremely-harmful-to-marine-life.html>
- Wenzel, George W. 2004. "From TEK to IQ: Inuit Qaujimagatuqangit and Inuit Cultural Ecology." *Arctic Anthropology* 41(2): 238-250. doi: 10.1353/arc.2011.0067
- Williams, Michael. 2003. *Deforesting the Earth: From Prehistory to Global Crisis*. Chicago, I.L.: University of Chicago Press.
- Wilson, Gary N. 2017. "Nunavik and the Multiple Dimensions of Inuit Governance." *American Review of Canadian Studies* 47 (2): 148-161. doi: 10.1080/02722011.2017.1323995.
- Wilson, Gary N., and Heather A. Smith. 2011. "The Inuit Circumpolar Council in an Era of Global and Local Change." *International Journal* 66 (4): 909-921. doi:10.1177/002070201106600417
- Wolfe, Patrick. 1994. "Nation and MiscegeNation: Discursive Continuity in the Post-Mabo Era." *Social Analysis* 0 (36): 93. <http://ezproxy.auckland.ac.nz/login?url=http://search.proquest.com/docview/1300691272?accountid=8424>.
- Wright, Shelley. 2014. *Our Ice is Vanishing/Sikuvut Nunguligtuq: A History of Inuit, Newcomers, and Climate Change*. Montreal: McGill-Queen's University Press.
- Wrona, Frederick J., Margareta Johansson, Joseph M. Culp, Alan Jenkins, Johanna Mård, Isla H. Myers-Smith, Terry D. Prowse, Warwick F. Vincent, and Philip A. Wookey. 2016. "Transitions in Arctic Ecosystems: Ecological Implications of a Changing Hydrological Regime." *Journal of Geophysical Research: Biogeosciences* 121(3): 650-674. doi:10.1002/2015JG003133