



Periodizing the Capitalocene as Polemocene Militarized Ecologies of Accumulation in the Long Sixteenth Century

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Abstract

Lewis and Maslin explore geological markers for the beginning of the “Anthropocene”-beginning, in their periodization, in either 1492 (naming the birth of capitalism as the cause of planetary crisis) or 1945 (naming elite-driven militarization as its cause). In this essay, I argue for a synthesis of these two dynamics, locating both the birth of capitalism and a transformation of elite-driven militarization in the conquest of the New World during the Long Sixteenth Century. As such, I propose narrating planetary history through a “capitalocene as polemocene,” “the age of capital as an age of war” framework.

Keywords: History of Capitalism, Military History, Capitalocene, New World, World-Ecology



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In 2000, Crutzen and Stoermer proposed the Anthropocene, or the “age of man,” as a novel unit of geological time; aiming to locate, periodize, and name, in Earth’s stratigraphic record, humanity’s influence on the global environment (Crutzen and Stoermer 2000). Geological historians have since debated the periodization. Where should we “start the clock” on human-induced, global environmental change? 5,000-10,000 years ago, humans developed settled agriculture (see Balter 2013; Foley 2013; Ruddiman 2013). 10,000-50,000 years ago, a massive Megafauna extinction resulted in four percent of all mammalian life of Earth dying, leaving a fossil record behind (see Baronsky 2013; Gradstein et al 2012).

Or should we begin with the Industrial Revolution, as Crutzen and Stoermer’s influential periodization proposes? In this article, an alternative periodization of global environmental change will be articulated. Rather than thinking through global environmental change through the lens of the *Anthropos*, or man, here the relations of war-making and capital accumulation will be centered through an exploration of the idea of a *polemocene*, or an *age of war*. I conceptualize the polemocene in reference to the ancient Greek mythological “Polemos,” a daemon embodying war. The article will argue that the global environmental change/ecological crisis that the Anthropocene aims to theorize stems from capital’s need to militarize ecologies towards endless accumulation.

Contributing to the capitalocene/necrocene conversation (McBrein 2016; Moore 2016), which frames the age of capital as an age of death, the polemocene is here proposed as a mediating force between the two. Capitalogenic global environmental change raises the specter of global mass-extinction, as does the threat of nuclear total war through “mutually assured destruction.” The accumulation of capital and the production of death are both cause and consequence of the waging of warfare.

The birth of capitalism following the Columbian invasions of 1492, the sixteenth century’s “Great Dying” of human and extra-human natures of the Americas, and the export of the “Military Revolution” to the colonies in the Second Sixteenth Century (~1550) form an interconnected, mutually reinforcing historical whole. The world-history of capitalism’s trajectory, from its birth in the Long Sixteenth Century to the present, has been punctuated by frequent and recurrent warfare. To think through this formation, of capitalism’s restructuring of ecologies through militarization towards extinction, is to speak to the crisis of the contemporary conjuncture. The capitalocene, the age of capital, should thus be understood as a polemocene, an age of war.

The Stakes of Periodizing the Anthropocene

To begin, I would like to start by thinking along with Lewis and Maslin (2015) who found two compelling periodizations for the start of the Anthropocene in geological-historical terms (i.e., in terms of the existence of so-called “golden spikes” in the Earth’s surface); either beginning with the new world genocides associated with the arrival of Columbus in Hispaniola (dubbed the “Orbis Spike”) and along with it, in their words “a swift, ongoing, radical reorganization of life on Earth without geological precedent” (Lewis and Maslin 2015: 174) or, on the other hand, the deployment

of nuclear weapons in the middle of the twentieth century, dubbed “the great acceleration” (Lewis and Maslin 2015: 176).

Lewis and Maslin were ultimately faced with a choice between the two “golden spikes,” and thus between two periodizations for the beginning of the Anthropocene. This is surely an indicator, as Lewontins and Levins (1998) remind us, that the natural and social sciences are not so different after all. They argue that, despite our preconceived notion that the natural sciences are somehow more “objective” than the social sciences, the performing of natural science is laden with what we might call “subjective” criteria:

The formulating of a problem, the definition of relevant variables, the choices of what to include or leave out, the decision as to what is an acceptable kind of answer, the interpretation of results, the rules of validation, and the linking of conclusions from different studies into a theoretical framework are all the results of social processes. (Lewontin and Levins 1998: 86)

Which marker were Lewis and Maslin (2015) to choose? Periodizing the beginning of the Anthropocene in relation to the Orbis Spike “implies that colonialism, global trade, and coal” (in other words, the birth of capitalism, as their citation of Wallerstein betrays) “brought about the Anthropocene” (Lewis and Maslin 2015: 175). Periodizing it in relation to the bomb spike “tells the story of an elite-driven technological development that threatens planet-wide destruction” (Lewis and Maslin 2015: 177).

Geological historians are confronted with a multitude of discipline-specific criteria, socially determined by their field,¹ in identifying and naming a stratigraphic layer of the Earth’s surface as an indicator of geological eras. Those of us doing what I, and the world-ecology perspective call “geohistory,” or the narration of geological and geographical histories, are not so constrained. We are not compelled, as geologists are, to choose a singular historical moment, relation, or process that defines a *geohistorical* epoch. We might instead attempt to see moments, processes, and relations as interconnected, and narrate them as such. Deploying a synthetic narration, which can conceptually link and historicize both the birth of capitalism and the transformation of elite-driven militarization (the Military Revolution) in the sixteenth century, is exactly what the capitalocene-as-polemocene—the age of capital as an age of war—frame promises.

The periodization of the Anthropocene is of immediate relevance to scholars who wish to understand the driving forces of contemporary ecological crises. How we understand the origins, evolution, and conditions of crises can speak volumes to the ways in which we think about solving them. Understanding from where and when dynamics that drive the ecological crisis—which characterize the contemporary conjuncture—begin is intimately connected to the question of how humans, as an environment-making species, produce their environments in historically specific ways (Lewontin and Levins 1997; Marx and Engels [1932] 1970).

¹ See Bourdieu (1993) for my understanding of “the field,” in this case, of geography/geology, which are embedded in wider “fields of power,” determining, as Lewontin and Levins (1998) articulate, what kinds of questions, conceptualizations, and answers are appropriate to ask/answer.

The assertion that humans make environments raises a critical line of questioning: do all humans have an equal, collective responsibility for the production of ecological crisis? This is the narrative offered by the “Anthropocene,” the “age of man;” that qualities inherent to “human nature” drive a collective “humanity” to destroy their global environments. This is a thoroughly substantialist reading of the problem, that “humans as things” cause ecological crisis. It is simply “in our nature” to “destroy nature.” We should instead attempt to think relationally (Bourdieu and Wacquant 1998) about the current conjuncture: what are the processes and relationships that drive, for instance, climate change or ocean and soil toxification? This is precisely what Lewis and Maslin (2015) offer us. Rather than placing blame for human-induced global environmental change on the shoulders of a collective, abstract substance called “humanity,” their quote offered above highlights the centrality of (in their conceptualization) *either* capital accumulation or elite-driven militarization as *relations and processes* that inaugurate global ecological change. But we can go further still.

Capitalocene and Polemocene, or Capitalism as Polemocene

The Anthropocene as concept has been radically de-constructed. Somewhere between 80 to 90 different nomenclatures articulating geohistorical alternatives to the “Anthropocene” have been suggested by scholars (Chwałczyk 2020). These nomenclatures, such as the capitalocene (Moore 2015, 2016, 2017a, 2017b), cthulucene and plantationocene (Haraway 2016), and so on each articulate geological time by framing and narrating the centrality of various processes and relationships that have driven change over time and across space.

These interventions are incredibly important. Many of them offer alternative geohistories to the one implicitly found in the notion of the Anthropocene; that an abstract and undifferentiated “humanity” has collective responsibility for the climate crisis (Moore 2019). Never mind that some, for instance, have profited immensely from the radical reorganization of life since the dawn of modernity, that *relations* of power and domination between humans might have something to do with the problem. I argue that we now need to engage in a radical synthesis and re-construction of these important alternatives.

The reconstructive synthesis in question turns on how might we connect these two geological-historical moments offered by Lewis and Maslin (2015), these two periodizations, which each propose salient points. In other words, how do we put into conversation the world-historical centrality of the accumulation of capital and the world-historical centrality of elite-driven militarization, and connect these two moments to the dynamics of ecological crisis? How can we see, think, and narrate the capitalocene-as-polemocene?

Moore (2019) proposes narrating the geohistory of modernity in and through an analytical focus on capitalism’s drive towards endless accumulation. His periodization, the capitalocene, articulates capitalism as a world-ecology of power, profit, and (re)production in the web of life; that the origins of the crisis we are trying to name stems from capitalism’s need to mobilize power

(at once symbolic and material) to appropriate natures as cheaply as possible towards the endless accumulation of capital. To quote:

The great innovation of capitalism, from its origins after 1492, was to invent the practice of appropriating nature. That nature was not just an idea but a territorial and cultural reality that engaged and policed women, colonized peoples, and extra-human webs of life. Because webs of life resist the standardization, acceleration, and homogenization of capitalist profit-maximization, capitalism has never been narrowly economic; *cultural domination and political force* have made possible the capitalogenic devastation of human and extra-human natures at every turn. (Moore 2019: 53. Emphasis added)

Bonneuil and Baptiste-Frezzoz (2017), on the other hand, propose the “polemocene,” or the “age of war,” as one of a number of nomenclatures that can be used to think through the kinds of synthetic re-construction proposed here.² Taken as a whole, their book *The Shock of the Anthropocene* is meant to probe some connections that can be made between different geohistorical narrations of the Anthropocene. But in their treatment of the capitalocene, they seem to miss out on an opportunity to do just this, writing “The last three centuries have been characterized by an extraordinary accumulation of capital: despite destructive wars, this grew by a factor of 134 between 1700 and 2008” (Bonneuil and Baptiste Frezzoz 2017: 222). Despite destructive wars? It will be my aim in this article to articulate an alternative formulation, that capital accumulation has commenced so spectacularly *because of* destructive wars.

Lewis and Maslin ultimately decided to periodize the beginning of the Anthropocene with the Orbis Spike (Lewis and Maslin 2015). However, if we could historicize a transformation of the dynamics behind “elite-driven militarization” to the Long Sixteenth Century, making the connection between war-making, environment-making, and capital accumulation in reference to the Orbis Spike and the Great Dying post-1492 (Koch et al 2019), we would be compelled to consider the history of the emergence of capitalism as a history of militarized accumulation in the web of life. This reformulation would frame the emergence of capitalism in terms of the development of novel strategies of environment-making, in which ruling classes would *set in motion* the militarization of planetary natures—towards the end of endless accumulation—in the Long Sixteenth Century.

In arguing that the capitalocene is a polemocene, I’d like to focus, for the purposes of this article, on capitalism’s fundamental reliance on the use of military force to achieve its end: endless accumulation. Scholarship dealing with the relationship between war-making and capital accumulation typically highlight what we might call the “rising organic composition” of capital in

² It is important to note that my conceptualization of the polemocene differs from the one used by Bonneuil and Baptiste-Frezzoz. Their conceptualization comes in Ch. 11, “Polemocene: Resisting the Deterioration of the Earth since 1750” in *The Shock of the Anthropocene*. In their conceptualization, the polemocene, drawing on a contemporary formulation of polemics, the act of debate or dispute, is an age of resistance to ecological breakdown. What I have in mind in my conceptualization is something closer to their conceptualization of the Thanatocene Ch. 6 “Thanatocene: Power and Ecocide,” an “age of death” narrated through a focus on power. My focus is thus, for the purposes of this article, more narrowly engaged with capitalist war as an exercise of power.

the history of the fighting of war; that is, they focus on the tendency for the fighting of modern wars to become ever more highly capital-intensive (see for example Parker 1976, 1991; Tilly 1991). This is an incredibly important body of literature, highlighting the role of the state in the creation of standing armies, the development of bureaucracies, and the associated invention of public debt as a means of “primitive accumulation” (Marx [1867] 1990: 915).

I’m proposing to focus on a related relation, on the centrality of warfare’s ability to deliver cheap inputs (food, labor, raw materials, and energy) to capital (Moore 2015). My concerns here are thus more in line with Christian Parenti’s (2016), who argues that the power of the state over territory (dubbed “geopower”) is a fundamental, historical precondition for the delivery of “cheap natures” to capital, and thus to the process of the accumulation of capital (Parenti 2016. See also Parenti 2020). He understands geopower as “the statecraft and technologies of power that make territory and the biosphere accessible, legible, knowable, and utilizable.... I am less concerned with the “writing” of the landscape and more concerned with geopower’s actual technologies and practices of measurement, regulation, and resource management” (Parenti 2016: 171). In line with Parenti, I argue that capitalist warfare (as a mode of deployment of geopower, situated within and producing ecologies) mobilizes both ethico-political/symbolic power (cultural domination, ideology, “civilizing” logics) *and* material power (force/warfare) towards capital accumulation, and that the two are intimately connected.

We typically think of the fighting of war, of war-making, as a concrete historical process: battles are fought, places are invaded, people are killed. Here, when we consider warfare as process, we can locate the “material moment” of capitalist warfare, that “cheap natures...essential to capitalist accumulation...are found upon the surface of the earth” (Parenti 2015: 167), and that territories conquered can offer capital reserves of cheap natures. I’d like to suggest the idea that war-making can also be understood as a project, as a “governing conceit” (Moore 2015: 2), a claim by the war-makers and capital accumulators that they can do with Nature what they please. Crucially, from the world-ecology perspective, the appropriation and delivery of cheap circulating capital requires the deployment of “real abstractions” (Moore 2015; Toscano 2008), ideas with operative power and force in the material world. This is the ethico-political/symbolic moment of capitalist warfare. War-making as project, in this formulation, is intimately connected to capitalism’s cheap nature strategies, that human and extra-human natures need to be identified, measured, and controlled, they need to be “seen” cheaply.

What would identifying war-making as a project and process simultaneously entail? We can start to frame the capitalocene as a polemocene, the age of capital as an age of war, if we locate historically the logics, the real abstractions, that orient and animate what we might call “militarized accumulation.” I’d like to suggest that militarized accumulation rests on both temporal and spatial logics. Temporally, militarized accumulation rests on the deployment of the logic of “Death from Above” as an historical project. Spatially, militarized accumulation depends on the logic of the “Labor Camp.”

Spatially, capitalism, from Hispaniola (the Orbis Spike) to Hiroshima (the Great Acceleration), depends on the mobilization of geopower on the part of the state to produce abstract

social nature. Moore writes “If geopolitics enforces Nature, it also renders Nature a motor of accumulation through the production of abstract social nature...the substance of abstract social nature is space” (Moore 2017a: 245). For Moore, geo-managerialism as a specific form of geopolitics “entails the restructuring of knowledge as a force of production” (Moore 2017a: 245). Geo-managerialism’s task is to identify, quantify, and map; and make legible to capital reserves of cheap natures found upon the surface of the earth. Here, revolutions in cartography, navigation, and surveying³ have been historically central to the process of accumulation by appropriation.

Temporally, capitalism rests on the production of abstract social labor. Time is the central content of abstract social labor. Socially necessary labor time regulates the value of commodities: the amount of average labor-time put into the production of a given commodity determines its value. For this to work, labor time must be reduced to an abstraction so it can be quantified, regulated, and controlled (Marx [1894] 1993).

Abstract social labor allows capital to treat labor as disposable, homogenized labor-time as interchangeable and replaceable. It thus allows capital to disregard, to abstract, the complex and sensuous life-making activities necessary for the (re)production of labor power. We recognize that capital cares not for the life and life-making regimes of the worker, that the only consideration capital has for the (re)production of the laborer is reduced to the paying of the wage.

What I think is underappreciated is the “productive” (productive, that is, for capital) role that death and death-making play in the accumulation of capital. McBrien’s (2016) concept of the capitalocene as necrocene helps us to bridge this lacuna. Arguing powerfully that “Capital was born from extinction, and from capital, extinction has flowed” (McBrein 2016: 116), McBrien argues that capital’s power over human and extra-human natures turns on its ability to transform ecocide and genocide into a means of profit-making.

He argues that the necrocene is the contradictory “shadow double” (McBrein 2016: 117) of the capitalocene; that capitalism’s drive towards endless accumulation (which itself represents the continual production, reproduction, and transformation of seeable, knowable, and controllable webs of life) depends on capital’s production of what we might call “regimes of death-making.” McBrien here focuses on a particular relation: that scientific revolutions under capitalism emerge as ways of controlling and managing death-making towards profit.

My argument here is meant to serve as a sympathetic corollary to McBrien’s. If we can periodize the capitalocene as necrocene through the narration of scientific revolutions in the production and management of ecologies of death to the benefit of capital, it ought to follow that we can periodize the capitalocene as polemocene through a narration of the ways that military revolutions (and, as treated here, “the” Military Revolution between 1530-1710 in particular) produced and were produced by the production of militarized ecologies geared towards endless accumulation. To do so, we now turn to the Long Sixteenth Century, to examine the origins of a transformation in “elite-driven militarization” within the capitalist world-ecology of power, profit,

³ See Mukerji (1984) and Crosby (1989) for discussions on the importance of changes in European cognition of the world, of “nature” that came in the sixteenth century.

and (re)production in the web of life-setting in motion the militarization of ecologies towards the accumulation of capital.

The Military Revolution and the Origins of Capitalism: The Army⁴ as Capitalist Technics
The Long Sixteenth Century (~1450-1640) (Wallerstein [1974] 2011) is considered by many in the world-systems tradition to be the period in which a “vast but weak” capitalism developed. It was also an epoch characterized by endless warfare, rapid militarization, the incorporation of vast swathes of territory into the modern world-system, and the emergence of the Westphalia system of states. Wallerstein offers the following scheme of capitalism’s emergence and subsequent spatiotemporal expansion: “My own view is that the genesis of [historical capitalism] is located in late-fifteenth-century Europe, that the system expanded in space over time to cover the globe by the late-nineteenth-century, and that it still today covers the globe” (Wallerstein [1983] 2011: 19). As Lewis and Maslin (2015) remind us, the Long Sixteenth Century was also a period in which global environments changed dramatically.

To see the capitalocene as polemocene, we need to engage with these historiographies simultaneously. Why was the militarization of accumulation so pivotal to capitalism-as-ecology’s origins, so central to its world-historical project and process, and what can a recognition of militarized accumulation tell us about the contemporary conjuncture?

Military revolutions, which punctuate the history of capitalism⁵, should be understood as ecologies of power, profit, (re)production *and destruction* in the web of life. The Long Sixteenth Century’s Military Revolution fundamentally re-ordered the way wars are fought, but it was also a revolution in the way that war-makers and capital-accumulators saw the world. It birthed a new productivity regime, changing production itself, organized along the lines of the new technics of military power.

Of course, warfare had existed long before the rise of capitalism.⁶ We can also be sure that much of the militarization associated with pre-modern warfare was elite-driven. Yet the Military

⁴ Although abstracted here, the argument presented in this section corresponds with that made by Rediker (2008) and Linebaugh and Rediker (2013), that maritime work represents a vector of proletarianization. An interesting comparison could be made between proletarianization via naval warfare versus proletarianization via land warfare.

⁵ We might consider, for instance, armed excursions by the Dutch via the VOC in the seventeenth and eighteenth centuries, British naval domination in the late-nineteenth and early twentieth centuries, and the development of American air power during and after the world wars as military revolutions in the plural. Further research might highlight the ways in which these revolutionary moments in the waging of warfare restructured global environments—albeit under different historical conditions.

⁶ Interestingly, the link between environmental change and warfare seems to be quite old—researchers have recently made the case that the first known wars (dating back ~13,000 years ago) were driven by climate change associated with the onset of the Holocene (the “age of the sun”) following the end of the Pleistocene (the “Ice Age”). However, these conflicts are characterized as sporadic—a far cry from the regimented violence that characterizes the Capitalocene-as-Polemocene (See Crevecoeur et al 2021).

Revolution of the Long Sixteenth Century marked a point of departure from earlier warfare, on the part of Europeans. What changed? In Parker's words,

By 1650 the West had already achieved military mastery in four separate arenas: central and northeast America; Siberia; some coastal areas of sub-Saharan Africa; and in some parts of the Indonesian and Philippine archipelagoes. Different as these regions, and their inhabitants, undoubtedly were, their experience of European invaders was, in one crucial respect, identical: *the white men, they found, fought dirty and (what was worse) they fought to kill.* (Parker 1991: 163, emphasis added)

During the Long Sixteenth Century, while most wars were fought on defensive terms, or to capture slaves, Europeans began fighting wars *with the explicit intention to kill, and to conquer territory.*

But the conquest of the globe took time. Parker illustrates the point:

But, until the late eighteenth century [which fits quite well with Wallerstein's account of the geographical spread of capitalism] the Europeans, for the most part, did not even try. Recent research has stressed how anachronistic it is to see the West as bent upon world domination from the voyage of Vasco de Gama onward. In fact, the Europeans originally came to Asia to trade, not to conquer, and most of them only undertook military expenditure either to coerce reluctant buyers or in order to safeguard themselves against attack from their European rivals. (Parker 1991: 179)

Inter-European warfare, however, constituted a mechanism for the geographical spread of capitalism: "It became inevitable that, whenever Britain and France (for example) went to war in Europe, the conflict would now spread to the colonies" (Parker 1991: 181). Violence in the core was gradually exported to the peripheries: "Whereas wars in Europe normally involved limited aims...those fought abroad aimed at the permanent and total subjugation of the enemy population, the destruction of their political system, and the appropriation and exploitation of as many of their assets as possible" (Parker 1991: 194). This geopolitical pressure, expressed through inter-European rivalry and exported to the rest of the world, as we will see, would later help drive the development of the Industrial Revolution.

The existence of a Military Revolution was first theorized by Michael Roberts (1956). Within the annals of military historiography, it became incredibly influential, paving the way for the development of a frame of analysis that scholars refer to as New Military History, which devotes considerable attention to the interrelationship between war-making and social change, rather than devoting a singular focus to the tactical-operational aspects of warfare (Black 1991; Black 2002; Rogers 1995). While the concept of a Military Revolution has been employed to theorize "such diverse issues as bureaucratization, the nature of revolutions, state-formation, and the rise of the west" (Rogers 1995: 3), its relationship to the *rise of capitalism* remains undertheorized.

For Roberts, The Military Revolution of 1560-1660 saw changes in (1) a revolution in tactics, requiring trained, professional soldiers and a standing army (in contrast with the use of mercenary

troops, used earlier),⁷ (2) a revolution in strategy, (3) an increase in the scale and scope of warfare within Europe,⁸ and (4) the increased impact of wars on society (Parker 1976, succinctly summarizing Roberts' argument).

Maurice of Nassau's (1567-1625) innovations in the tactical waging of war came in the form of the development of highly uniform, regimented, and rationalized companies of troops, trained to coordinate the firing of weapons, maximizing the tactical efficiency of firepower. Thus was born the military company as an *administrative* unit (Parker 1976; Roberts 1995), and military administration as a modern form of power and domination. Here, geo-managerialism, the structuring of knowledge-power as a force of production, finds its militarized expression.

Geoffrey Parker, a student of Michael Roberts, rearticulates the Military Revolution frame. One of his central contributions has been to alter Roberts' periodization. Rather than arguing that the aforementioned shifts in the waging of war arrived at the behest of the Dutch and Swedish during the period 1560-1660, and especially during the 30 Years' War (1618-1648), Parker demonstrates that Spanish war-making in the period beginning in 1500-1530 exhibited all of the characteristics of Roberts' original theorization (Parker 1976, [1988] 1996). The development of fortresses, the use of gunpowder, and the proliferation of artillery in the sixteenth century enabled, for Parker, the "rise of the west."

Accounts devoting considerable attention to technological innovation⁹ have been critiqued through the charge of "technological determinism," most notably by Jeremy Black (1991, 2002). While retaining the frame of Military Revolution, useful in that it is indicative of an historical shift, Black argues that an analytical focus on technological innovation alone offers insufficient explanations for the processes that the technology-focused accounts of the Military Revolution seek to explain (bureaucratization, revolutions, state-formation, and the rise of the west [Black 1991, 2002: 213]). Rather, he argues that the Military Revolution should be understood as a process of the gradual militarization of Europe's culture, institutions, ethics, and politics (Black 1991). He articulates these changes by framing them as a development of a "strategic culture" in the sixteenth century (Black 2002; see also de Bruijn 2010).

Thus, for Black, military-technological change needs to be understood within its historical context. He cites European bellicosity, militarized clientelism between sovereigns and those raising troops, aristocratic ambition, the territorialization of identity, and the existence/lack of social support for campaigns as important contextual-historical elements for the rise of European militarism (Black 2002).

Notably, the pressures of capitalist competition are missing from this list. Teschke fills the gap, arguing "It was the pressure of (geo)political accumulation...that explains the violence of

⁷ See Wallerstein (2011) on the substitution of standing armies for mercenary armies.

⁸ Marxist accounts of state-formation (in particular Tilly 1992) have noted that the maintenance of large standing armies have forced states to sell their debts, transforming state revenue into private capital, thus ushering in a wave of primitive accumulation.

⁹ Such as the Roberts-Parker theorization, but also Cipolla (1965), for example.

early modern international relations. It was these inter-ruling class conflicts, and not some autonomous military techno-determinism, that drove the military-technological innovations associated with the ‘Military Revolution’” (Teschke 2003: 221).

The pressures of capitalist competition, expressed through the geography of war-making, would drive industrialization over time. In Satia’s words, “War did not trigger every aspect of the industrial revolution, but it was the context in which that revolution took shape. The international order and the enmity of France and Spain were the ‘inescapable givens of power politics’” (Satia 2018: 16). European powers, fighting wars in Europe and conquering abroad, could not rely on their rivals’ weapons industries to supply their armies—it would be ridiculous to expect two nations at war to trade arms with one another! States would need to intervene, to protect and promote their nascent weapons industries—lest these industries (1) lag behind the competition, in terms of technological development, (2) lose markets abroad to competition, or (3) disappear altogether through gun-makers leaving the country for work elsewhere; or through lack of profitability in peacetime (Satia 2018). They would act “out of a paternalistic sense of responsibility toward, and a diplomatic effort to avoid alienating, an industry essential to security” (Satia 2018: 40), continually purchasing weapons during war and requiring changes in their manufacture during peacetime.

The Roberts-Parker versus Black debate presents to us an either-or vision of the Military Revolution. Either the Military Revolution is technological revolution or it is cultural-institutional-political one. Lewis Mumford ([1934] 2010), and his concept of technics, offer us a way out of the impasse.

Lewis Mumford ([1934] 2010) highlights the centrality of a change in cognition, in seeing and knowing the world, for the way that capital extracts surplus value. Technological developments in the waging of war are, for Mumford, situated within a wider social field, in which “strategic culture” matters. He argues:

The regimentation of modern warfare carries much farther than the actual discipline of the army itself.... The general indoctrination of soldierly habits of thought in the seventeenth century was, it seems probable, a great psychological aid to the spread of machine industrialism...modern industrialism may equally be termed a large-scale military operation. (Mumford [1934] 2010: 84)

This regimentation, as we have seen, was born out of the Maurice of Nassau’s tactical-operational innovations during the Military Revolution of 1530-1710. Mumford continues “But the most important fact about modern warfare is the steady increase of mechanization from the fourteenth century onward: here, militarization forced the pace and cleared a straight path to the development of modern large-scale standardized industry” (Mumford [1934] 2010: 87). Crucially, for Mumford, “*The army is in fact the ideal form toward which a purely mechanical system of industry must tend*” (Mumford [1934] 2010: 89. Emphasis in original).

Again, here, we can see the geopolitics of warfare prefiguring the geography of industrialization. As the organizational/tactical-operational innovations of the Military

Revolution—which centered on the regimentation of warfare—were adopted gradually from the sixteenth century onwards, states and armies were confronted with the need to standardize the production of arms as well. They needed to do this more effectively than their rivals. “Standardizing weapons expedited production and enabled the uniformity of drill practice that was emerging as a military standard. This was a crucial step toward development of mass production” (Satia 2018: 38). For a regimented infantry to effectively fire their weapons in unison, soldiers, units, and armies needed to have a standardized weapon that could be loaded and shot at a predictable pace. Crucially, states would play a role in this standardization, and in doing so, promoted industrialization. Satia writes of the British case:

The British state was involved in technological progress in the gun industry from the start (which she places in the fifteenth century)... The very need to settle on a mass- producible standard arm to uniformly equip the army drove top-down tweaking of design between wars and of production processes during war.... Attachment to the standard weapon encouraged tweaking...and tweaking was the driving force of industrial revolution. (Satia 2018: 147-148)

State intervention and the promotion of industrialization for war-making would extend to other industries adjacent to gun-making as well, including the development of the steam engine, as well as copper and iron production.

But Britain was not alone in the fifteenth century. The Spanish, during the *Reconquista*, struggled with this exact industrial-geopolitical dilemma, initially relying on foreign made cannons to supply their armies. The state stepped in, and in a semi-successful attempt to alleviate this dependency of foreign gun production, set up five state-run gun foundries in Iberia by 1492 (Cook Jr. 1993).

Mumford then argues that the production of abstract social labor, disciplined, controllable workers amenable to exploitation at the point of production, comes at the behest of innovations made during the Military Revolution. “The regimentation and mass-production of soldiers, to the end of turning out cheap, standardized and replaceable product, was the great contribution of the military mind to the machine process” (Mumford [1934] 2010: 92). The forms of modern mass-production and industrial labor control, and thus the modern proletariat, find their antecedents in the early modern military unit and the early modern European soldier.

Proponents of Crutzen and Storer’s periodization of the Anthropocene, beginning with the Industrial Revolution in England, miss the fact that without the military regimentation of social life originating in the Long Sixteenth Century, there would be no Manchester factory, no industrial proletariat, no “classic” English capitalism. Mumford states the point succinctly: “It thus happens that England has sometimes been taken as the original home of inventions that had come into existence much earlier in Italy. So, too, the nineteenth century pinned its own brown laurels that often enough belonged to the sixteenth and seventeenth” (Mumford [1934] 2010: 141-142).

Critiques that engage in the reification of the factory and of fossil fuels as substances rather than on relations of power and profit in the web of life (for instance see Foster 2009; Malm 2016; Mitchell 2011) miss the manifold world and globe-making revolutions in the way ecologies life

were (re)produced in the Long Sixteenth Century. Militarization as an ecology of power and profit, from within and outside of Europe, is central to this story. Without the modern army, there is no factory. Without the modern soldier, there is no proletariat.

Capitalist Militarism in the New World: New Spain, Labor, and the Military Revolution's Export in the Second Sixteenth Century

Mumford's ([1934] 2010) is a powerful statement regarding the development of modern industrial production. Proletarians are exploited in the factory under conditions of military regimentation at the point of production. However, as Moore (2015) argues, every act of exploitation at the point of production requires an even greater act of appropriation beyond the factory. Reserves of un- or undercapitalized cheap labor, food, energy, and raw materials must be appropriated by capital at little or no cost to counteract the tendency of the rate of profit to fall. Geographical expansion and the deployment of geopower are essential to the maintenance of accumulation. The Military Revolution of the Long Sixteenth Century, and the militarization of accumulation by appropriation, should be read as expression capitalism as project and process along its geographical frontiers. Here, we can turn to the New World in the Long Sixteenth Century.

The export of the Military Revolution to the new world is a subject of debate. Critics have argued that the application of force in the colonization of the Americas was "frequently applied, but not much was necessary" (Raudzens 1995: 104). Others have argued that warfare played an insignificant role in the conquest (Hassig 1988).

Both proponents and opponents of the "export thesis" often fall into the trap of technological determinism. Proponents point to the use of firearms in the New World as evidence of the Military Revolution's implementation in the Americas (O'Connell 1989; Guilmartin 1974). Opponents argue that the limited use of guns and gunpowder, issues with supplies, an absence of trained, professional soldiers, and the climate and topology of the New World hindered the implementation of the Military Revolution in the New World (Kicza 1992; Raudzens 1995).

These accounts center around a particular periodization of the Spanish conquest. Early Spanish advances into the New World are taken as the alpha and omega of Spanish colonization, and are held up as the only possible period in which war-making played a role in the construction of Spanish empire. The conquest of Mexico and the defeat of the Aztec empire by Hernán Cortés and his conquistadors (1519-1521) and the conquest of Peru and the defeat of the Inca empire by Pizarro and his men (1531-1532) figure prominently in the periodization of a supposed lack of a military revolution in the New World.

Clendinnen (1991) diagnoses the problem convincingly. She argues:

Analysts, save for military historians,¹⁰ have overwhelmingly concentrated on the first phase of the conquest, assuming the consummation of Spanish victory to be

¹⁰ There is no citation given here, but I assume that Clendinnen is referring to the "New Military Historians," with their emphasis on the culture, politics, and institutions of war-making, and not military-technological determinists.

merely a matter of applying a technological superiority...I would argue that it is only for the second phase that we have sufficiently solid evidence to allow a close analysis of how Spaniards and Indians made sense of each other, and so to track down issues that must remain will-o'-the-wisps for the first phase (Clendinnen 1991:76-77).

The objects of analysis are different (Clendinnen's approach reconstructs Spanish and Indigenous ontologies of warfare, mine argues that the age of capital, from the Long Sixteenth Century, is an age of war) but the historiographical problem is the same. What was going on in the second sixteenth century, after the initial phase of contact between the Spanish and Indigenous peoples of the Americas?

It is widely accepted that early *conquistadors* looted gold and silver from the cities and civilizations of the New World. What happened after is of extreme consequence for the rise of capitalism. A shift from a regime of plunder, organized around the looting of the new world, to a regime of *productivity and plunder*, in which precious metals had to be mined—*produced*—under conditions of capitalist militarization, took place in the second phase of the conquest, in the second sixteenth century.

This shift, from plunder to productivity, marks a critical historical departure. Abu-Lughod characterizes the economic impact of early European (pre-capitalist) military forays outside of Europe precisely in terms of plunder. She writes “The Crusades may have been initiated by a desire to capture souls, but *they were sustained, in part, by the capture of booty*. When conquests failed, however, purchases were necessary” (Abu-Lughod 1989: 48, emphasis added; see also Abu-Lughod 1989). Europeans in the thirteenth century could use military force to plunder wealth, but in general, the tendency was to have to purchase goods—Europe thus faced a chronic negative balance of payments.

This relatively weak position of Europe in the world-economy, between the beginning of the twelfth and end of the thirteenth centuries, when read alongside Wallerstein's periodization of capitalism's life-trajectory, is indicative of a shift. How did Europe, subordinated in the world-economy to a hegemonic Asia (Gunder Frank 1998), rise to its latter hegemonic position? “So how did the west rise” (Gunder Frank 1998: 277)?

Gunder Frank offers a model. He argues—through metaphor—that “the West first bought itself a third-class seat on the Asian economic train, then leased a whole railway carriage, and only in the nineteenth century managed to displace Asians from the locomotive” (Gunder Frank 1998: 37). He points to the discovery of silver (but also gold) in the New World in the sixteenth century as decisive. Imports of silver from the New World would allow Europe to buy its way into lucrative Asian trade networks. What was particularly novel about this? Gunder Frank writes:

How were any-literally-poor Europeans able to afford the price of even a third-class ticket to board the Asian train? Well, the Europeans somehow found and/or stole, extorted the money to do so. Again, how so? The basic answer is two-fold, or three-fold. The most important answer is that Europeans obtained the money from the gold and silver mines they found in the Americas. The secondary answer is that *they “made” more money, in the very good business first of digging up that silver-*

or more accurately, obliging the indigenous peoples of the Americas to dig it up for the Europeans. The Europeans also engaged in a variety of other profitable businesses they ran in...the Americas. (Gunder Frank 1998: 277, emphasis added)

It was in part the *productivity* of the mines of the New World that would enable Europe's rise to hegemony. But we should follow Gunder Frank's example, and ask the crucial question again: "how so?" In what follows, an account seeking to explain *how* the Europeans were able to coerce the indigenous peoples of the Americas into mining silver will center the importance of European *use of military force*. To extend Gunder Frank's metaphor, before the Europeans could purchase their third-class seat on the Asian economic train, they first had to rob the money from the Indigenous peoples of the Americas at gunpoint.

The "at gunpoint," however, should not be taken *too* literally. Instead of determining the presence or absence of the export of the Military Revolution in the New World by determining the presence or absence of a given number of guns, as the technological determinists would have it, we should instead look for evidence of the use of militarized technics in the New World. The origins of capitalism are to be found at the conjuncture of militarization as process and relation, accumulation as ethico-political project and concrete historical process, turning around epoch-making transformations in the web of life. Neither power nor "modernization," neither capitalism nor ecological crisis flow *literally* "from the barrel of a gun" as object (Mao 1938: 224).

The Spanish economy in the First Sixteenth Century depended on flows of silver and gold coming from its colonial conquests in the New World (Wallerstein [1974] 2011). It was used to pay back debts to the Genoese for the *Reconquista* of Iberia and to pay for food and raw material imports from the Baltic (Moore 2010a, 2010b; Wallerstein 1980). The Spanish began by instituting a regime of plunder, robbing gold and silver from the New World's cities and empires (much like the plundering of the Levant described by Abu-Lughod [1989]). But this looting could only occur once. Afterwards, they needed to shift to a regime that combined productivity and plunder, they needed to *produce* bullion (as indicated by Gunder Frank 1998).

Indigenous peoples would be drafted to work in the mines of the New World, most infamously at Potosí. A labor regime that would compel them to abandon their temporal life-making schedules, for instance their production of foodstuffs which had been organized around planting and harvest times, would need to be instituted by force. Federici (2004) highlights this use of force: She argues that until the 1550s, the *encomienda* (or tributary labor) system had not totally disrupted the indigenous economy. The ever-growing need of the Spanish crown to extract more bullion (remembering that Phillip II's declaration of Bankruptcy occurred in 1557 [Wallerstein (1974) 2011]) the recent discovery of the Potosí silver deposits, and mounting resistance to the *encomienda* led the Spanish to "declare war on indigenous cultures, paving the way to a draconian intensification of colonial rule" (Federici 2004: 225).

Orlando Bentancor (2016) lays out for us the Spanish's material metaphysics, their way of "seeing" and "knowing" the world. He writes "sixteenth century Spaniards...understood mining through long-standing metaphysical beliefs concerning the essence of matter. This metaphysical framework assumed that the natural world was composed of raw and defective material that had

to be dominated from above and directed to a higher end” (Bentancor 2016: 1). The metaphysical principle of “natural subordination,” that imperfect or incomplete matter (in this case, in the eyes of the conquistadors, the indigenous peoples of the Americas) could only be perfected (read: “civilized”) through its subjugation by “divine artifice,” at the hands of a master (God, Sovereign, Conqueror) animated the Spanish’s “civilizing mission” (Bentancor 2016: 29).

Bentancor writes:

Spaniards saw Amerindians as an imperfect matter that should be molded and guided to the only ends common to all humanity-civilization and salvation. Although the official imperial discourse appealed to civilization and conversion as ends in themselves, an examination of the arguments invoked by the apologists of Spanish empire show how the aim of these ends was to mobilize the indigenous labor force and accumulate riches. (Bentancor 2016: 27)

Federici continues: “Their objective was to create a space of death, where potential rebels would be so paralyzed with fear that they would accept anything rather than have to face the same fate as those publicly beaten and humiliated” (Federici 2004: 229). This creation of and control over this “space of death” was grounded in, as Bentancor notes, the declaration of “just war” on the indigenous peoples by the Spanish, on the grounds that they did not “own” and “master” the new world’s bullion reserves (Bentancor 2016: 29). If we synthesize Bentancor’s framing of Spanish Imperial metaphysics, insisting on the principle of “metaphysical instrumentalism/natural subordination from above,” with Federici’s emphasis on the role of violence and control over death in the production of abstract social labor/abstract social nature, with its concomitant reorganization of life-making activities, we arrive at the logic of “death from above” as project: a militarized metaphysic centered on the domination, alienation, and abstraction of indigenous labor towards Spanish accumulation of capital.

This space of death was not limited to human natures. Between 1558-1804, some 315,642 km² of forests and grassland in New Spain were cleared, to provide fuel for silver amalgamation (Studnicki-Gizbert and Schechter 2010). “These changes radically reconfigured both the biophysical (ecosystems, soil composition, hydrology) and human characteristics of the colonial mining belt” (Studnicki-Gizbert and Schechter 2010: 105). This reconfiguration of the biosphere “pushed landscapes past the threshold where recovery was even possible, at least not in the timeframes afforded to human history” (Studnicki-Gizbert and Schechter 2010: 111).

David S. Jones (2016) highlights the central role played by the waging of “just war” and the creation of a “space of death” in the massive mortality of the indigenous peoples. He writes, contrary to the “virgin soils” examination of indigenous mortality, “Spaniards confiscated Taino labor, disrupted subsistence activities, displaced populations, and undermined living conditions... It was not simply new diseases that affected native populations, but the combined effects of warfare, famine, resettlement, and the demoralizing disintegration of native social, political, and economic structures” (Jones 2019: 29). Rai (1993) describes the Spanish waging of “just” war on indigenous Americans as “total war,” characterizing the legacy of European arrival in the New

World, with the resultant dialectical world-destroying and world-making genocide and ecocide, as “the Five-Hundred Year Reich of Columbus” (Rai 1993: 33).

The Orbis Spike as geological-historical marker illuminates dramatic changes in the ways in which global environments were made and re-made following the Columbian invasion of the New World after 1492. Lewis and Maslin write “One biological result of the [Columbian] exchange was the globalization of human foodstuffs. The New World crops maize/corn, potatoes, and the tropical staple manioc/cassava were subsequently grown across Europe, Asia, and Africa. Meanwhile, Old World crops such as sugarcane and wheat were planted in the New World” (Lewis and Maslin 2015: 174).

They continue:

Besides permanently and dramatically altering the diet of almost all of humanity, the arrival of Europeans in the Americas also led to a large decline in human numbers. Regional population estimates sum to a total of 54 million people in the Americas in 1492...Numbers rapidly declined to a minimum of 6 million people by 1650 via exposure to diseases carried by Europeans, plus war, enslavement, and famine. (Lewis and Maslin 2015: 175)

The resultant carbon sequestration, initiated by a “near-cessation of farming and reduction of fire use” (Lewis and Maslin 2015:175), and subsequent regeneration of New World forests is widely considered to have caused the “Little Ice Age” (which lasted from the mid sixteenth century to the mid nineteenth century [Mann 2002]). The effects were dramatic. “Colder conditions, combined with altered patterns of atmospheric circulation, appeared to be tied to the prevalent crop failures in the more northern areas of Europe at the time” (Mann 2002: 1). Not limited to Europe, atmospheric change was felt in Australia, India, Africa, the Caribbean, and North America as well (Grove 2005). Class struggle/class warfare over the conditions over the (re)production of life proliferated, such that we can speak of the opening of a global class war in the Long Sixteenth Century (See for example Fagan 2019; McNally 1993).

The Chichimecas War in New Spain (1550-1590) is demonstrative of capitalism’s use of military force to produce abstract social labor/abstract social nature. Here, we can find an amalgamation of changes in the way Europe relates to the rest of the world-through the militarization of planetary natures. New Spain’s position in the early modern global economy was central: from initial contact to the early eighteenth century, approximately forty percent of the world’s bullion reserves at the time would come from the region (Barrett 1990). In 1546, Spanish settlers discovered silver deposits near Zacatecas (Tenace 2012). Gunder Frank (1998) highlights the importance of this discovery:

A major new infusion of American silver began with the discovery of the silver mines at Potosí in Peru (now Bolivia) in 1548 and at Zacatecas in Mexico in 1548.

This new silver made a far-reaching impact on the world-economy, beginning in 1600 if not earlier in various parts of Asia. (Gunder Frank 1998: 132)¹¹

Given Spain's dire balance of payments crisis at the beginning of the second sixteenth century, securing these silver deposits was of vital importance to the Hapsburg monarchy (Wayne-Powell 1944).

The Chichimecas, the people indigenous to the region, resisted Spanish encroachment on their territory. This resistance threatened New Spain's silver output. Initially, the organization of the defense of Spanish territory was mounted primarily by private actors. These, however, proved ineffective (Tenace 2012), so Don Martín Enríquez de Almanza, Viceroy of the territory from 1568-1580, intensified the military effort against the Chichimecas. "Under Enríquez...the warfare against the Chichimecas was, to a considerable extent, systematized and made effective...his administration marks the first period of real continuity, system, and vigor in the Spanish prosecution of warfare against the nomads of the North" (Wayne Powell 1944: 581-582).

In contrast to the picture offered up by accounts of Cortés' defeat of the Aztecs, in which a corps of unprofessional robbers with little military training plundered an empire, the story of the Chichimecas War, and of continual Spanish imperial expansion into the Second Sixteenth Century, tells a different story, of the export of the Military Revolution to the New World. The war marks the first time in which Spain sent a professional, trained army to the New World (Tenace 2012). A system of *presidios*, or forts, was set up along the frontier, manned by these professional troops (Wayne Powell 1944).

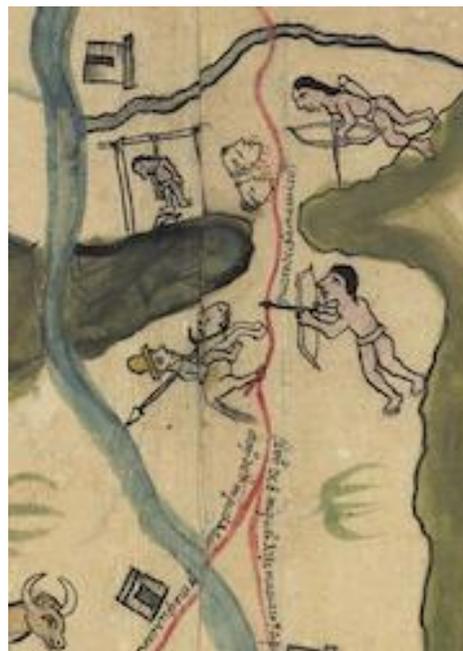
A map was drawn up circa 1580, and it reveals a great deal about the Spanish settlers' priorities in the period (Mapas de las villas de San Miguel and San Filipe de los Chichimecas 1580. See Figures 1a and 1b). Studnicki-Gizbert and Schecter (2010) remark that this map is thoroughly ecological/topographical in nature. This is demonstrated in Figure 1a. Trees can be found in the mountains, and be used to fuel silver amalgamation (Studnicki-Gizbert and Schecter 2010: 101). The logic of geo-managerialism is at work here: extra-human natures must be identified, codified, and mapped before they can be appropriated for capitalist production. This logic extends to human natures as well. The selections of the map shown here demonstrate that the map is at once an ecological and operational-strategic artefact. Chichimecas and Spanish warriors populate the entire map. The Chichimecas occupy the mind of the map's producer, and the "strategic culture" of the Military Revolution informs what they choose to include (and what they choose to abstract) from the map. As we see in Figure 1b, they impede Spanish access to vital raw materials. As the history bears out, they are also a potential labor force for the Spanish silver mines. As ethico-politically "imperfect raw substance," they themselves are part of the landscape, a part of "Nature" that the Spanish seek to exploit. This too is geo-managerialism at work: a militarized/ systematized effort to rationalize and control life-making in the service of capital.

¹¹ Tenace (2012) and Wayne Powell (1944) agree on the date 1546 for the discovery of silver in Zacatecas. Nevertheless, the discovery and subsequent militarization of production-certainly commences at the onset of the Second Sixteenth Century.

Figure 1a



Figure 1b



The creation of Spanish Imperial regimes of abstract social labor and abstract social nature were, however, contradictory. Del Valle (2019) helps us unpack the contradiction. Writing about Spanish ontologies of civilization and exploitation, she argues that these two processes “take us to the very heart of the contradiction, and a decisive one it is: how the Christian West understood itself as a civilizing project” (Del Valle 2019: 47-48). The Spanish were faced with a problem, “the ‘Indians’ in New Spain, who, as Quiroga states again and again, were in danger of disappearing altogether if their treatment continued as it had been for the last decade” (Del Valle 2019: 50). The fact that “Indians” were “fleeing *en masse* in the face of the conquest” (Del Valle 2019: 53), and to this we might add dying *en masse* (Koch et al 2019), presented a challenge to Spanish Accumulation strategies: how could they maintain a labor force necessary to keep extracting ecological surpluses (in bullion, labor, and foodstuffs)? An attempt to “civilize” the indigenous peoples, to settle them into European style-towns, seeable, knowable, and controllable; to transform them from “barbarians” into “the poor” was attempted (Del Valle 2019). Thus the creation of a “space of death” and the resettlement of indigenous Americans into *reducciones* inaugurated the birth of capitalism’s world-praxis of social regulation/control (see Santiago-Valles 2006; 2016) and with it the fixing of laboring populations into the “labor camp,” a militarized mechanism of domination and accumulation which finds expression throughout the history of capitalism; from the contemporary American prison-industrial complex, to concentration camps in South Africa at the turn of the twentieth century, to Cuba in the 1890s, Europe during the Second World War, and Vietnam in the 1960s and 1970s.

The need to fix labor was of central concern to the Spanish during the Chichimecas War. The Chichimecas were a semi-nomadic people, difficult to fix to a labor site. While the Spanish Army in New Spain was funded by a combination of private capital (Kizca 1992) and the royal treasury (Wayne Powell 1944), lack of funds still presented challenges. The solution was, on the part of the soldiers, to engage in the slave trade. The situation of Roque Núñez, a Capitan in the Spanish Army, is indicative: “He was undoubtedly none too scrupulous in capturing peaceful Indians for resale as slaves in order to augment his meager official income” (Wayne Powell 1944: 587). He was not alone. “Captives were, as usual, given in slavery to the soldiers participating in the foray” (Wayne Powell 1944: 587). Captives would be taken from their homes and moved to work in mines far from where they had been captured. “This latter stipulation may have been due to the fact that the Spaniards found it difficult to keep the Chichimecas in captivity anywhere near their original habitat” (Wayne Powell 1944: 589).

As we know, the contradictions of the production of the indigenous peoples as abstract social labor and abstract social nature resulted in the decimation of the Spanish empire’s labor force. Recent estimates place the mortality rates of indigenous Americans post-Columbian contact around 55 million dead, out of a pre-contact population of roughly 60.5 million (Koch et al 2019).

We’re now in a position to return to Gunder Frank’s (1998) model. In arguing for a more holistic approach to the study of how and why the “decline of the east” preceded the “rise of the west” (expanding on Abu-Lughod 1989), he lays out what he calls a “Global Economic Demographic Explanation,” in which the “discovery” and subsequent appropriation of bullion in the New World by the Europeans plays a central role (Gunder Frank 1998). He asks “So how to regard this global whole historically, be it before or after 1500?...I have suggested the analogy of the three-legged stool. It rests equally on ecological/economic/technological, political/military power, and social/cultural/ideological legs” (Gunder Frank 1998: 340).

Interestingly, he speculates on the effect the Little Ice Age had on the decline of the east (Gunder Frank 1998), expressed through crop shortages, famines, epidemics, population decline, and economic crisis. To his credit, he recognizes that “The most neglected [consideration,] also in my own work, has been the ecological component” (Gunder Frank 1998).”

The capitalocene as polemocene frame allows us to fill this gap-to extend Gunder Frank’s climatological speculation. Taking seriously the notion that Spanish incursions into the New World in the Long Sixteenth Century—and the subsequent Great Dying of the indigenous peoples of the Americas through a combination of disease, exploitation, and warfare—contributed to the global cooling associated with the Little Ice Age, we get a clearer picture of what it was the Europeans were “doing” that enabled their rise; and with them, the rise of capitalism.

Neither eurocentric cultural or institutional reductionism explain the rise. Rather, in and through the waging of wars of conquest in the New World, the European war-makers and capital-accumulators set in motion, in the Long Sixteenth Century, a particular strategy of environment-making. First, Spanish conquistadors came to the New World to plunder its wealth. After the

exhaustion of this frontier windfall¹², the Spanish would need to shift towards producing bullion. They did so by making use the novel war-making logic associated with the Military Revolution, in order to coerce the indigenous peoples of the Americas to mine the bullion they would use to offset their chronic balance of payments crises (to the east (Abu Lughod 1989: Part I), as well as in the Baltic zone (Moore 2009).) Unintended as it was, the massive demographic decline of the indigenous peoples of the Americas, attributed to warfare, disease, and exploitation, and the subsequent sequestration of carbon from the atmosphere, inaugurated a global cooling event that would last into the nineteenth century.

What was novel about what the Europeans were doing in the Long Sixteenth Century was that, through their cheap nature project of de-valuing human and extra-human life, the Europeans were able to remake planetary natures through the militarization of ecologies and of their accumulation strategies, in the name of endless profitability.

There was, however, a way out for the Spanish, after they had decimated their laboring population. Slaves could be imported to the New World from Africa, serving as new source of cheap labor for capital via what Miller (1988) calls the “slaving frontier,” itself a geographical zone of militarized appropriation. If capitalism’s “innovative flexibility” rests on its ability to secure cheap circulating capital, then the survival of capital depends on what Moore calls “commodity frontiers,” geographical zones of relatively un- or undercapitalized (read: cheap) sources of ecological surplus, not yet commodified yet within the zone of capitalist power (Moore 2000). Without commodity frontiers, new geographical zones of appropriation, capitalism runs the danger of entering into its own epochal crisis.

Conclusion

Here, we have reflected on the origins of capitalism—taking together the Colombian invasions and the Military Revolution of the Long Sixteenth Century as a turning point in world-history. The Military Revolution and the conquest of vast swathes of territory in the New World, taken together, would set in motion forces that animate capital’s cheap nature strategies. Warfare itself punctuates world-history; major wars are not always being fought. When they are, new territories can be incorporated into the modern world-system. But even in “peacetime,” the changes ushered in by the Military Revolution—from labor control strategies, changes in the web of life associated with ecocide and genocide, to state-promoted industrialization in the name of geopolitical competition—still make themselves felt. Never mind that, over the history of capitalism, “there were so many transitions between peace and war that it is difficult to establish what ‘normal’ economic conditions were” (Satia 2018: 13).

Warfare has been, to an extent, sidelined in relation to our historical imaginary. “Historians typically treat war as ‘a historical accident unrelated to the process of industrialization’” (Satia

¹² By windfall, I mean “a profit that comes because the cost of one or more of [the factors of production] is either completely missing or greatly reduced” (Prescott Webb 1954: 21).

2018: 12). The same can surely be said in relation to environmental change! It is high time we begin to reconsider the role of warfare as it relates to the history of capitalism-as-ecology.

Framing the capitalocene as a polemocene raises some interesting lines of argumentation. Moore argues that capitalism is a way of organizing natures; that capitalism does not have an ecological regime, it itself is an ecological regime. This is to say that there is always an “ecological moment” to whatever aspect of the history of capitalism we are looking at. To this, we might add that capitalism doesn’t have a military regime, it is a military regime; that the use of military force by capital is bound up with capitalism’s movements through ecologies, there is always a “military moment” involved in the accumulation of capital.

More narrowly, I think this insight warrants a re-thinking of the way in which the environmental historiography of warfare is narrated. This body of literature almost always frames the environmental history of war through a discussion of “impacts” (see for instance, Gould 2007; Laakkonen, Tucker, and Vuorisalo 2017; Tucker et al 2018; Tucker and Russel 2004; Russel 2001). When Laakkonen (2017) evokes the “polemosphere,” or the part of the biosphere impacted by warfare, he highlights an incredibly important aspect of the history of modernity: that warfare destroys. Ecosystems are “impacted” by the fighting of battles, mobilizations for war, and so on. But rather than treating global environments as “object,” as the “polemosphere” does, the polemocene allows us to see the militarization of ecologies as an historical relation and process; that ecologies are dynamic; that they are not merely objects that are destroyed but matrices through which wars are fought and fortunes are appropriated. Rather than treat ecologies as static and ahistorical substances that are “acted upon” or “impacted” in times of war, I think a more productive framework would articulate what we might call the “ontological condition” of warfare as spatial and ecological. Battles are fought *over* the terms and conditions of cheapness, places are invaded *for* their labor reserves and raw materials, and ecologies themselves—the flows of rivers, the fields of mud, the harshness of winters—help determine the outcomes of wars.

But there are limitations here too. In focusing on the origins of capitalism, and the military-economic-ecological dynamics unleashed by its rise, we’ve only briefly encountered wisps of how the militarization of global environments makes capital accumulation possible over the *longue durée*. We are left here with an integrated macrohistory of a “moment.” But how might other “military revolutions” remake ecologies in the name of endless accumulation? We might follow Silver and Slater (1999) and chart out the “Militarized Ecological Origins of World-Hegemonies,” employing multiple incorporated comparisons (McMichael 1990) to see how, for example, British naval supremacy or American air power extend the capitalocene as polemocene.¹³

To conclude, the Industrial Revolution, lodestar of the “Anthropocene” as concept, is unthinkable without considering how the Military Revolution of the Long Sixteenth Century fundamentally altered global human and extra-human natures in the service of capital. From the production of abstract social labor and abstract social nature, to the development of the factory as a highly rationalized, hierarchical, and regimented technic of production, capitalism requires the

¹³ I am grateful to the anonymous reviewer for this suggestion.

deployment of military force to achieve its end—endless accumulation. We can assert with confidence Marx’s historically concrete observation regarding war-making in the service of empire as an historically determinate relation under capitalism: capital indeed, quite literally, “comes dripping from head to toe, from every pore, with blood and dirt” (Marx [1867] 1990: 926).

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