# Societal Selection and Historical Materialism

By Luke Lattanzi-Silveus

Word Count: 99868

# Abstract

This DPhil thesis is an attempt to provide a detailed account of Marx's theory of history which relies on a quasi-Darwinian mechanism. Building on the debate around G.A. Cohen's *Karl Marx's Theory of History: A Defence*, I argue that a selective mechanism between societies can underpin some of the key theses of historical materialism. In societal selection, the view I propose, greater development of the forces of production leads to a competitive advantage for those wielding these forces. Therefore, societies which adopt more developed forces of production – or relations of production which foster the development of the forces of production – will tend to be those that succeed, expand and impose their practices on others, at the expense of societies with less developed forces. This, in a manner similar to natural selection, creates a broad tendency for forces of production to develop and for relations which enable further development of these forces to emerge. This thesis will not just be and account of this process, which has already been presented in a more limited form by others; it will also attempt to detail the mechanisms underlying this process in order to tease out what a historical materialism that is based on societal selection would look like. How do forces of production translate into advantage in (generally military) competition? What is the role of imitation and human intention in the theory? How do the mechanisms of historical materialism play themselves out? What account does this theory have of class struggle and human agency? What kinds of predictions would this theory yield? Answering these questions will not only provide a more complete view of historical materialism but also address the critiques levied against this selectionist view. The goal of this thesis is to propose a detailed theory which can provide a compelling account of human history.

# Chapter Headings

Introduction 4-21

Chapter 1: Intentionalist and Selectionist Historical Materialism 22-52

Chapter 2: Societal Selection and Imitation 53-84

Chapter 3: Extra Labor 85-122

Chapter 4: Relations of Production: Compatibility, Contradiction, and Optimality 123-163

Chapter 5: Societal Selection and the Transition to Socialism 164-188

Chapter 6: Class Struggle, Contingency, and Agency 189-218

Chapter 7: Predictions of Societal Selection 219-245

Conclusion 246-252

# Introduction

*A Darwinian Historical Materialism*

Historical materialism, the theory of history most associated with Marx and Engels, is a powerful and ambitious theory. It aspires to explain the economic, social, and political mechanisms which shape the course of human history and offers an understanding of human society that does not draw many of the modern distinctions between social sciences. If accurate, historical materialism provides a compelling way to understand the social world and human history both because its interdisciplinary approach allows it to do justice to the interconnectedness of the social sciences, and because it provides a theory wherein underlying but knowable factors, such as the material forces of production, are explanatory. Roughly, the theory states that the processes and technologies human beings use to produce at any given time are in some sense determinate of many of the power relations that exist in society. Or, in Marxist terminology, the forces of production have some form of explanatory primacy over the relations of production and superstructure. But exactly how are they explanatory? What mechanisms ensure that the forces of production have explanatory primacy in history? Answering these sorts of questions is crucial to unlocking the potential of historical materialism – and has been the subject of some debate among Marxists. A developed account of the ways in which the forces of production have primacy would not only allow a greater understanding of historical materialism, but would also open it up to assessment as to how well, at least on the proposed account, historical materialism can explain human history and human society.

This DPhil thesis proposes that the theory of historical materialism would be best established through a quasi-Darwinian process I call "societal selection". While Marx and Engels never fully elaborated how they understood historical materialism to function, there is evidence that

they saw their theory as in some way fundamentally similar to that of Darwinian evolution. Marx and Engels greeted the publication of Charles Darwin's *The Origin of Species* with enthusiasm. Engels purchased one of the very first copies of the *Origin*, which he described in a letter to Marx as "absolutely splendid".[1] When Marx got around to reading it a year later he stated that it was "the book which contains the basis in natural history for our view".[2] My work takes seriously this notion that there is something fundamentally similar about the methods of Marx and Darwin.[3] This DPhil

[1] Marx and Engels, 1983, p. 551.

[2] Marx and Engels, 1985a, p. 232.

[3] Although Engels continued to admire Darwin's work, Marx's exact views on Darwin are less clear. After his initial enthusiastic statements Marx appears to take a more critical approach to Darwin. However, given that Marx does not in any of these writings contradict his statement that Darwin's work contains the basis in natural history for their view, and that Engels was consistent in his pointing to parallels between Darwin's theory and those of Marx and himself, it is reasonable in my view to hold that Marx and Engels continued to hold that their theories and those of Darwin were in some way pertinently similar, which is all I claim here. Importantly for this point, while Marx was a vocal critic of social Darwinists and considered his own work to be antithetical to social Darwinism (see Ball, 1979, pp. 473-474), he does not separate his own theories from that of Darwin in the same way. Granted he does criticize Darwin and he is quite clear in cautioning against the uncritical use of scientific theories from the natural sciences in the social sciences. However, when it comes to Darwin's theory, he appears to view it quite favorably. In fact, in *Capital*, both of his references to Darwin are positive. He describes Darwin's work as "epoch making". Marx and Engels, 1996, p. 346, footnote 1. And most tellingly for the account of the development of the forces of production I am attempting to provide here, Marx also appears to cite Darwin's work as the sort of analysis of the history of "Nature's technology" that he would like to see for the history of human technology, ending the footnote with what is likely an implicit critique of Darwin's actual attempt to venture into an analysis of the social world in his work on the *Descent of Man*. Marx and Engels, 1996, p. 375, footnote 2. Marx appears, therefore, to view Darwin's theory very positively as a scientific one, but considers that a straightforward attempt to apply Darwinian theory, without adaptation, to the development of humanity (such as that effected by social Darwinists and arguably by Darwin himself) is doomed to be merely a reflection of dominant ideology. The work I am undertaking here uses the Darwinian mode of explanation but does not rely on Darwinian theory directly. It does not for instance rely on genetic inheritance at all, as the work of Paul Nolan (2002a) does. Societal selection could be described as an attempt to reconcile Marx's justified skepticism with applying Darwin's theory uncritically to the social world with his initial instinct, never contradicted by himself and oft repeated by Engels, that there is something fundamentally similar in their views. This will be discussed further in Chapter 1. For more discussion of the relationship between Marx and Darwin see Colp, 1982; Gerratana, 1973; Urena, 1977 and 1981; and Ball, 1979.
And if Marx was unclear in his views about Darwin Engels was anything but. Although he also criticized Darwin's apparent reliance on Malthus, he was a consistent and enthusiastic defender of Darwin and his ideas. In fact, even on the point of Malthus, Engels was quick to draw a distinction between Malthus and Darwin. "However great the blunder made by Darwin in accepting Malthusian theory so naively and uncritically, nevertheless anyone can see at first glance that no Malthusian spectacles are needed to perceive the struggle for existence in nature". Engels, 1987, p. 64. See Gerratana, 1973, pp. 70-75 for a more in depth discussion on the relationship between the theories of Darwin, Malthus, and Marx and Engels. There are other examples of Engels interest in Darwin, but perhaps the most telling, in terms of noting the high regard that he held for Darwin, is his statement at Marx's funeral that "Just as Darwin discovered the law of evolution in organic nature, so Marx discovered the law of evolution in human history". Marx and Engels, 1989a, p. 467. Incidentally, the fact that Engels was willing to highlight this at the funeral of his friend and collaborator, while certainly not proving that Marx was as enthusiastic about Darwin as he was, at least provides some evidence that Marx would not have strongly objected to this comparison.

thesis seeks to show that building an understanding of historical materialism grounded in a selection process between societies enables a coherent and convincing account of the primacy of the forces of production.

By so doing, I hope to be able to develop a theory of historical materialism that constitutes a compelling account of historical change, resolves some major debates in Marxist scholarship on whether the forces of production or the struggle between classes has primacy, and may help justify Marx's claim that historical materialism is, at least in some sense, scientific. Such an account could also help guide attempts to change society, as historical materialism was arguably intended to do. Societal selection aspires to provide a means of determining when societies are ripe for change, and what sort of change they are ripe for. In other words, it aspires to enable us to know when the material conditions are conducive to change and when societal change might be successful.

My work builds on debates in Analytical Marxism. Specifically, I attempt to build upon two accounts of historical materialism. The first is that of G.A. Cohen[4], who elaborated a defense of historical materialism that grants explanatory primacy to the forces of production. And the second is that of Alan Carling[5], who argued for replacing Cohen's intentionalist account of the development of the forces of production with one relying on competition. I see my argument as the next step in the work they have begun, using the criticisms that others have brought against them to create a more robust theory.[6]

[4] See especially Cohen, 1986a; and Cohen, 2000.

[5] See Carling, 1992, Chapter 1; Carling, 1993; Carling, 1994, pp. 70-71; and Carling, 2002. Carling is not the first to bring up the idea of using societal competition to explain the development of the forces of production, however he is the only one to develop this idea significantly. Christopher Bertram develops a very similar idea in a paper which he did not subsequently expand on. Bertram, 1990. Chris Harman also very briefly argues along these lines in a larger argument about the relationship between base and superstructure. Harman, 1986. Paul Nolan has some relatively developed work arguing that a Darwinian competitive mechanism could underpin the development of the forces of production. Nolan, 2002a; and Nolan 2006. However, his argument relies on the notion that greater developed forces of production allow greater reproductive benefits for the members of societies which adopt them. Finally, McMurtry applies a selectionist methodology to defend the correspondence between forces and relations of production but does not thereby defend its primacy. Rather he defends the primacy of the forces of production by other means. McMurtry, 1978, pp. 201-222.

[6] Cohen's work has received a very large amount of critical response. Carling, on the other hand, likely due to his work on the matter coming at the end of the debates around *KMTH*, has had relatively little critical

*The Societal Selectionist Process*

In this work I will argue that the main theses of historical materialism can be defended using what I call the theory of societal selection. I take these theses to include the following, drawn from the work of Levine and Wright: 1) The Compatibility thesis: relations of production are not compatible with all levels of development of the forces of production. 2) The Development Thesis: the forces of production have a tendency to develop. 3) The Contradiction Thesis: when the forces of production develop to the point of not being compatible with relations of production they will come into conflict. And 4) The Transformation Thesis: when they do come into conflict this will ultimately be resolved by the old set of relations being replaced by a new one which is compatible with a higher level of development of the forces of production.[7] I will argue that societal selection provides the best means of substantiating these 4 theses.

While most of this work will be devoted to discussing the many implications and hurdles of societal selection, the core notion is simple: societies with greater developed forces of production will tend to spread their practices at the expense of those with lesser developed forces. The process works analogously to the process of natural selection. Where natural selection states that creatures with greater fitness will tend to survive, reproduce and spread at the expense of those without, societal selection states that societies with greater developed forces of production will tend to

response, Vivek Chibber and David Laibman being rare authors to have discussed his full work on the subject (there were some, such as Marcus Roberts who criticized early formulations of Carling's work, and others, such as Murray Smith, who critiqued small parts of it while seeming to agree with the main thrust of Carling's argument). Chibber, 2011; Laibman, 2008; Roberts, 1996; and Smith, 1993.

[7] These theses are taken directly from Levine and Wright. Levine and Wright, 1980. I do not include the Optimality thesis here since I do not consider it necessary that historical materialism posit that the new set of relations must be *optimal* for the forces of production, simply that it permit their further development when the previous ones do not. It does not seem necessary for instance, for historical materialists to hold that capitalism was the best possible system to develop the forces of production during the fall of Feudalism. I will however discuss the optimality thesis in chapter 3 since I believe that the thesis is defensible, even though historical materialism is not necessarily committed to it.

conquer or be imitated by those with less developed forces of production, causing the greater developed forces to spread.[8]

Similarly to natural selection, societal selection is only meant to demonstrate a tendency. Natural selection does not predict that creatures with greater fitness *will* survive, only that they will *tend* to. It is entirely unsurprising from a Darwinian point of view that creatures with greater fitness may and do occasionally die before being able to pass on their genetic material. Societal selection argues the same. It is possible for societies with greater developed forces of production to lose militarily or otherwise have their institutions replaced by less effective ones. However, the tendency will be for those with greater developed forces to succeed militarily, economically or to be the object of imitation by others, meaning that their greater developed forces of production will tend to be adopted by others. This leads to a tendency for the forces of production to develop.

Already, with this brief discussion, it should be clear how societal selection could defend the development and transformation theses mentioned above (theses 2 and 4). A tendency for societies with greater developed forces to spread at the expense of those with lesser developed forces would establish a general tendency for the forces of production to develop. Similarly, if greater development of the forces of production grants this competitive advantage, then relations that further develop these forces, however they might emerge, would have an advantage over those that are fettering the development of the forces of production. In other words, societies that adopt the use of a new and more efficient productive technology (such as machinery) will have a competitive advantage over those who do not, and societies which adopt a new set of relations (such as capitalism) will have a competitive advantage over those holding older relations (such as feudalism). Greater forces of production, and relations which develop these forces, will be selected for at the

[8] As such, according to this view, historical materialism possesses "directionality". It posits a causal explanation that entails a tendency towards change in a certain direction, in this case change in the direction of improving the forces of production. This is distinct from teleology in that the end (greater developed forces of production) does not cause the events that bring it about. Rather the dynamics of inter-societal competition, according to societal selection, cause the forces of production to tend to develop. See Levine and Sober, 1985, pp. 309-310.

expense of those that do not. This creates a tendency for the forces of production to develop and for relations of production which fetter this development to be replaced by those that do not. As for the compatibility and contradiction theses, the way they fit into the model and how they might be defended within it will require further discussion later in the thesis.

Societal selection provides what I believe to be a compelling defense of these fundamental theses of historical materialism in a way that Cohen's *Karl Marx's Theory of History: A Defence* (henceforth KMTH), is unable to. Nevertheless, it is meant as an addition to, and not a replacement of, this groundbreaking work. The present work takes for granted much of the framework Cohen establishes in KMTH. I adopt most of his definitions of key terms, such as forces and relations of production, and I also adopt the view that forces of production functionally explain relations of production and that relations of production functionally explain the superstructure. The four theses above are meant, in this reading, to establish how these functional relationships take place. However, societal selection is meant to defend the theses above in a way that Cohen was ultimately unable to. Cohen's own arguments for these theses have been the most heavily critiqued portion of his work.[9] Cohen himself later abandoned his tentative rationalist underpinning of the functional explanation and appealed for a better defense of his use of the functional explanation.[10] Societal selection aspires to contribute to that defense.[11] It does not require that we assume, as Cohen does, that human beings are rational agents, or that human beings are capable of implementing change

[9] J. Cohen, 1982, pp. 256-257; Elster, 1980, p. 124; Levine and Wright, 1980, pp. 56-60; Gottleib, 1985, pp. 10-11, 17; Brenner, 1986, p. 46, footnote 13; Carling, 1993, pp. 38-39; Nolan, 2006, pp. 162-163; and Laibman, 2019, p. 8. Cohen has of course been criticized on other fronts, and societal selection is not meant to, or able to, defend his view from all criticisms. However some, such as the critique of Cohen's use of fettering in Miller, 1981, pp. 96-98, will be discussed later in this thesis.

[10] Cohen, 1986a, p. 22.

[11] So long as such a defense is available, this allows the theory to circumvent Elster's critiques of the use of the functional explanation. So long as there is a causal mechanism whereby a function can become a cause, then, as Elster himself admits, such explanations can be defensible. Elster, 1982, p. 455. I will not take a position here on Elster's claim that a causally underpinned functional explanation doesn't really count as an independent form of explanation. Whether or not it does, the explanation I propose should be valid so long as the causal account it proposes is defensible.

because it is in their rational interest to do so.[12] A greater ability to perceive the causes of another's success will increase the speed at which more developed forces of production are imitated, but the basic competitive mechanism underlying societal selection works just as well without needing to make any assumptions about human beings behaving rationally. A society with greater developed forces of production will have a greater ability to mobilize resources towards competitive pursuits regardless of whether or not this greater development came about through rational decision-making or not. In fact, this theory not only accepts, but even expects, that human beings will commonly be mistaken about the sources of both their own and others' success.

Societal selection additionally builds from Alan Carling's competitive primacy. Carling argues that societies with greater levels of development of the forces of production will tend to outcompete militarily or economically those with lesser developed forces of production. This means that those with greater developed forces will tend to survive and spread at the expense of societies with lesser developed forces. This in turn leads to a tendency for the forces of production to develop, as those with greater developed forces are selected for and those with lesser developed forces are selected against in international competition. I contend that Carling's basic idea is correct, but that the model needs to be significantly expanded and refined to provide a more accurate account of historical change.

There has been relatively little dispute with Carling's selectionist model in relation to the two most dramatic changes in the productive ability of human beings: the transition from hunter-gatherer to agricultural production; and the transition from feudalism to capitalism.[13] While some,

[12] This is a common critique made of many accounts of the transition from Feudalism to capitalism, including that of G.A. Cohen. See for instance, Brenner, 1986; and Levine and Wright, 1980.

[13] Graeber and Wengrow do argue against this consensus about the rise of agriculture to some extent. There is at least some debate around their work and the accuracy of some of their examples (see for instance Lindisfarne and Neale, 2021). However, even if their work is upheld, it is not clear that they offer a rebuttal to Carling (though of course, they are not explicitly trying to). Their main contentions on the subject − that hunter-gatherer societies did occasionally farm, that adoption of agriculture was halting and sporadic, that many hunter-gatherer societies knowingly and intentionally avoided adopting agriculture, and that urbanization may have been the cause of agriculture and not the other way around − do not contradict Carling's view. See Graeber and Wengrow, 2021, pp. 165, 173, 251-252, 260, 287. Namely, they do not

such as Laibman,[14] might argue that something fundamental or crucial might be missed if we focus only on the competitive advantages, it seems difficult to deny that the competitive advantages of agriculture and of capitalism played at least an important role in their subsequent spread. Indeed, no critic of Carling's selectionist account of historical materialism that I am aware of denies that the greater developed forces enabled by capitalism played a major role in the subsequent spread of capitalism.[15] Similarly, the productive advantages enabled by agriculture and by capitalism were dramatic and allowed them to "outbreed, displace, conquer or kill", to use Jared Diamond's phrase, those using other forces or relations of production.[16] However, the more difficult moments to account for using a selectionist model are those in which the productive advantages are not so stark. As such, my work will avoid focusing much on capitalism or its emergence, where the competitive process is well established, or on the shift to agricultural production. Instead, I will focus on discussing how societal selection relates to the periods of history that are more difficult for a selectionist theory to account for: the periods between these two massive shifts, within which the relations of slavery and feudalism were dominant. I will also look at the transition towards socialism, which, as Laibman notes, seems rather difficult to conceive of in a selectionist account. It is difficult

---

contradict that once agriculture becomes the dominant means of producing sustenance in a society and works out how to survive and remain stable, it will tend to outcompete its neighbors. It will not always do so, but it will tend to. In fact, this tendency might be able to explain how we might have gotten from the rather diverse forms of life that Graeber and Wengrow describe to tending more and more towards the hierarchical modes that characterise modern times. See Graeber and Wengrow, 2021, pp. 503-504.

More generally, my juxtaposition of agriculture and capitalism may be a bit confusing here. After all agriculture is an advance in the forces of production while capitalism is a set of relations of production. It is unclear whether the element that renders these societies (ultimately, if not always initially) more competitive is the mass adoption of agriculture or the relations of slavery (as I define it in Chapter 4) that the adoption enables. However, since agriculture seems to have been a limiting factor for the spread, as climactic constraints did pose a significant barrier to the spread of these forms of organizing, I have opted to keep that term for now. Parsing out which term would be more appropriate would require more space than I have here. But whichever term is used this step is the key one (if this question is even meaningful given that both were likely required); the point here is that societies that took this step were generally able to spread their practices to nearby societies where such agriculture was possible (and gradually towards others as the staple crops of these societies were bred to survive in other climates).

[14] Laibman, 2008, pp. 90-93.

[15] Chibber, 2011, p76; Laibman, 2008, p. 99; and Smith, 1994, pp. 75-76. Authors who mention Carling in passing also seem to take the view that Carling's theory applies to the transition between feudalism and capitalism, just not to pre-capitalism. See Milonakis, 1997, p. 311, footnote 8; and Allinson and Anievas, 2009, p. 58.

[16] Diamond, 2017, p. 148.

to envision capitalism, a system which thrives on competition, being outcompeted.[17] Among other things, these concerns entail de-emphasizing market competition, which is a cornerstone of Carling's argument but is not clearly a major factor before the rise of capitalism. Rather, I will emphasize the mechanisms of military competition and societal imitation, which are more impotant in pre-capitalist societies. Additionally, I will try to draw my historical examples, when possible, from pre-capitalist societies.

This change in emphasis and acceptance that not all forms of competition will always be available throughout human history allows societal selection to avoid the pitfall of generalizing market competition to earlier forms of society. As such it does not fall prey to the some of the critiques that many authors such as Polanyi, Brenner, and Wood pose to "commercialization model" or "Smithian" accounts of the emergence of capitalism, which ascribe to markets a role that they appear not to have had historically.[18] While market competition is a component of a society's ability to spread its practices in capitalism, it is not a means that could be used by pre-capitalist societies to do so.

Given the vast scope of the topic, I will not be attempting to "prove" societal selection using historical examples. Historical examples will crop up, either to illustrate something I am saying, to show how something I am saying might be plausible, or to show how societal selection might respond to historical cases that have been brought up in the literature around historical materialism. But none are there to attempt to prove anything. Historical examples cannot prove a theory that spans the whole of human history.[19] No one will be surprised if I can find a historical example or two that strongly supports my view. I suspect this would be possible for most theories of history. However, what the vast scope of history does provide is a vast pool of possible counterexamples. As such, I base the tenability of this theory on how well it stands up to counterexample. Importantly

[17] Laibman, 2008, pp. 94,97,100.
[18] See for instance Wood, 2002, p. 13; Brenner, 2007, pp. 56-58; and Polanyi, 2001, pp. 61-62.
[19] And indeed, attempting to "prove" a theory through example or even well-crafted experiment is, I would argue, misguided. See Popper, 1989, pp. 33-38.

this means that societal selection must have predictions that have clear potential counterexamples. Given how much societal selection is able to accommodate in terms of specific historical events, determining what counts as an important counterexample will not be immediately straightforward, which is why I spend my final chapter discussing the predictions made by societal selection.[20]

Before closing on this subject, I would like to avoid a possible worry or confusion that might result from my use of Darwinian theory in the social sciences. Any use of Darwin's theory applied to the social world will undoubtedly bring to mind social Darwinism, a theory that is rightly reviled as an unscientific and racist one. However, drawing from Darwin to analyze society does not automatically lead to social Darwinism. In fact, the only similarity societal selection bears to social Darwinism is that both draw inspiration from the scientific theories of Darwin, and in the case of social Darwinism even this is debatable.[21] They are otherwise quite opposed theories which propose two very different mechanisms operating in human history. Societal selection does not function at the level of the individual and makes no claims about individual fitness or natural selection playing any real role in historical development. This is a crucial distinction. Given that the object of analysis of societal selection is the society and not the individual, it does not argue for the "natural"

[20] Both Popper and Lakatos criticized Marxism on this point, that it was too capable of integrating new evidence and that no new evidence could really call it into question. Popper, 1989, pp. 34-35; and Lakatos, 1978, p. 88. And indeed, I would consider this to be a major issue with much of Marxist thought. Popper's falsificationist doctrine has since come under a variety of criticisms, and so I will not be drawing from it too much. See Khun, 1970, p. 146; Duhem, 1962, Chapter 6; and Quine, 1953, Chapter 2. As such I will prefer to draw on the insights of Lakatos' methodology of scientific research programs, which I believes provides a compelling response to these critiques. Lakatos, 1978; and Lakatos, 1968. (Although admittedly it has its own critiques, such as Feyerabend, 2010.) Indeed, I am not the first to think that while Lakatos may criticize Marxist thought, his methodology provides an insight into how Marxism might think about its scientific status. Burawoy, 1990; and Munoz, 2013. However, unlike these other two authors, I believe that Lakatos was right to insist that Marxism was not (yet) in a good place to develop towards being a science. However, it has potential. As Lakatos himself notes, the theory does have a hard core, and so avoids being a mere series of empirical adjustments. Lakatos, 1989, p. 88. Marxism also has the advantage of being committed to materialism, as well as theoretical abstraction. Ruben 1979, pp. 4-5, 8, 64-66, 127-133; Geras, 1971, pp. 69-71; Cohen, 1972, pp. 183-188. The challenge for Marxism is to develop into a theory that makes predictions which are vulnerable to evidence. This is one of the goals that I hope societal selection can make a step towards.

[21] Social Darwinism does indeed draw some concepts from Darwinian theory but the core view that competition for survival was needed to counteract an imagined racial degeneration existed well before Darwin. Claeys, 2000, pp. 228, 235. In fact, insofar as Darwin himself turned more towards social Darwinism in the *Descent of Man* it was as a result of interactions with proponents of already existing social Darwinism, and not as a logical consequence of any of the ideas of the *Origin of Species*. Claeys, 2000, p. 237.

superiority of individuals or races, for eugenics, or for any of the other abhorrent proposals of social Darwinism.[22]

Additionally, unlike social Darwinism, I do not make any claim that greater competitiveness is in any way "natural", morally superior, or even that it is necessarily desirable. New relations of production often come with human suffering. They may not be desirable in human terms and indeed societal selection suggests that more competitive modes of production will prevail even if they are not desired by or good for the majority of those living within it. After all, greater developed forces will confer a competitive advantage whether or not people like whatever enabled such development. Even imitation can occur when the majority is not favorable to the change, either because the imitation is carried out and enforced by a minority ruling class, or because such imitation is undertaken for the sake of avoiding conquest (or worse) at the hands of those with greater developed forces. There is evidence, for instance, that the advent of agriculture occurred in spite of the will of those involved, likely through some combination of military competition and imitation to avoid military conquest. Early agriculture was accompanied by a decreased standard of living almost across the board, a fact which hunter gatherer societies were almost certainly aware of.[23] Nor does societal selection claim that the process of development that I propose has any moral valuation to it. The process of societal selection is often violent and brutal. Colonialism, war, economic imperialism, and even genocide are all parts of this process, as are innovation, imitation, and cooperation. The moral status of both the process and the result of this process are not the focus here. Whether or not they are "good" or desirable, they are processes that are determinative of broad tendencies in human history.

[22] Mike Hawkins claims that there are four main assumptions to social Darwinism: 1) biological laws govern all nature including humans, 2) population growth and the limitation of resources entail a struggle for existence among organisms, 3) physical and mental traits confer a competitive advantage on individuals in this struggle and can be spread through the population via inheritance, and 4) the cumulative effects of this selection account for the emergence of new species and the elimination of others. Hawkins, 1997. None of these assumptions are used in societal selection.

[23] Diamond, 2017, p .101; Diamond, 1999; Diamond, 2002, p. 700; Giddens, 1981, pp. 22-23; and Scott, 2017, pp. 8, and pp. 232-233, Graeber and Wengrow, 2021, p. 165.

*Societal Selection, Agency and Class Struggle*

Within Analytical Marxist scholarship, there tends to be an issue reconciling what are perhaps Marx's two most fundamental theories about history: that the forces of production are fundamental to historical transformation and that "the history of all hitherto existing societies is the history of class struggle".[24] Both seem to claim explanatory primacy over the course of history. And yet, it seems that they will at times come into conflict. What if a set of class relations is able to override the tendency of the forces of production to develop? Robert Brenner, for example, argues against Cohen that in pre-capitalist societies, neither the ruling class nor the working class had an interest in the development of the forces of production and that the rise of capitalism resulted from a specific and contingent set of class relations that emerged in late feudal England to make it possible. The emergence of capitalism therefore would seem to be a result of a contingent set of class relations and the class struggle that ensued, as opposed to the result of any tendency to develop the forces of production.[25] Accounts such as this would seem, on the surface, to pose a problem to a theory of history based on the development of the forces of production. If a set of class relations can override this developmental tendency, possibly permanently, then the forces of production lose their position as the motor of history.

I believe that societal selection can resolve this apparent dispute.[26] Using a selectionist model allows the establishment of a tendency in human history while leaving room for human action, class action, and contingency in history. Just as natural selection does not need to account for the precise events and causes which engendered a creature mutating a fitness enhancing trait,

[24] Marx and Engels, 1987a, pp. 263-264; and Marx and Engels, 1976c, p. 482.
[25] Brenner, 1986, pp. 29-32; and Brenner 1976, pp. 46-47 and pp. 53-54.
[26] I am not the only one to argue in this manner either. Carling (1992) also argues that his competitive primacy model, quite similar to my own, allows for a reconciliation between Cohen and Brenner. I plan, however, to go much more in depth into the broader implications of this fact in my work.

societal selection does not need to explain precisely how a new development in the forces of production, or a new set of relations of production, actually emerged.[27] It only states that once such forces or relations do emerge, they will tend to spread at the expense of less developed alternatives. It is therefore agnostic about the actual causes of innovation and change. Rather than explaining the emergence of innovations or new relations of production, the purpose of societal selection is to explain why some tend to succeed and spread while others do not.[28] As such, it may very well be the case that class struggle is what causes new forces or relations to emerge, or it may be that it prevents them from emerging for some time, but in the long run, faced with a stagnating set of relations of production, a new set of relations will emerge somewhere, given enough time. Societal selection establishes that once such forces or relations emerge, they will be likely to spread only if they constitute or allow an increase in the development of the forces of production. Societal selection therefore provides a *structural cause* for the rise to dominance of new sets of relations of production. In other words, it explains the conditions that made such a rise possible or likely, and not the actual events that precipitated the rise of new relations in a given time and place. Other

[27] Ernst Mayr (2002, p. 131) claims that natural selection is both "a process of chance and accident" and "deterministic". Herein lies one of its strengths. It turns a process of chance and accident into one with deterministic power, that can make predictions. I claim that something analogous is possible for societal selection, though whether its predictions hold up to scrutiny is another question. For societal selection, however, it would be more correct to say that it is simultaneously a process of contingency and deterministic. I use the word "contingency" instead of "chance and accident" because this contingency is, in societal selection, at least sometimes caused by human intention, and not merely chance or accident.

[28] Therefore, societal selection is an instance of what Jonathan Wolff calls "weak self-advancement". Rosen and Wolff, p. 236 (Darwinian selection is, here explicitly used as an example of weak self-advancement). It argues only that once an "improved" state is achieved, it will tend to be kept. It does not argue that there is an inherent tendency for a state of affairs to be "improved". Of course, weak self-advancement does generate a tendency to "improve" so long as there is enough variation that "improved" states can be generated. The difference with strong self-advancement however is that in weak self-improvement the tendency towards "improvement" comes only from the combination of the possibility of generating "improved" states and the tendency for such "improved" states to be kept, whereas in strong self-improvement the mechanism which generates these states also inherently has a tendency to generate improved states (this interpretation of Darwinian theory is also present in Levine and Sober, 1985, p. 308). Wolff notes at the end of this article (p. 241), that the mechanism of weak self-advancement that he uses to defend the Marxist theory of ideology cannot be used to underpin a functionalist account of historical materialism, since more effective ideology does not necessarily imply advancement in the historical materialist sense. As he notes, the fact that the theory of ideology cannot form the basis of historical materialism should come as a surprise to no one. However, this does not rule out the fact that weak self-advancement of the forces of production could underpin a functionalist account of historical materialism, as indeed I argue it does. After all, greater development of the forces of production does, unlike more effective ideology, constitute advancement in the historical materialist sense.

forms of explanation, such as those based on class struggle or accounts of individual agency, can elaborate the *proximate cause* of such transformations, explaining why they emerged in the specific time, place, and manner they did.[29]

I claim therefore that Marx was right to believe that *both* class struggle and the development of the forces of production are the causal forces that move history forward.[30] Class struggle analysis often provides an explanation of when and how a new set of relations of production might emerge. The development of the forces of production, however, explains when it is possible for such changes to become successful and spread instead of being consigned to the dustbin of history. Capitalism cannot have the success it did without the prerequisite development of the forces of production. Alongside an analysis of the technological limits of a set of relations of production, the development of the forces of production can tell us when it is materially possible for attempts at systemic change to be successful. Actual change still requires class struggle, and even individual action to some extent. But all the concerted effort in the world, be it by a class or individuals, cannot make change until the conditions are right. Or as Marx once put it "Men make their own history, but they do not make it just as they please; they do not make it under

[29] On proximate and structural causation, see Fay, 1996, p. 68 and Little, 1991, pp. 104-105. This proximate/structural distinction is similar to Little's distinction between standing conditions and instigating conditions. Little, 1991, p. 26. Since what I am describing is an instance of structural causation, however, I believe the proximate/structural distinction to be appropriate.
For instances of other authors relying on this distinction see, Diamond, 2017, p. 78; and Weber, 2005, p. 20. Additionally, I believe it was with something like this distinction in mind that Engels used the phrase "in the last analysis" to describe the causal primacy of economic conditions over moral theories and political events. Marx and Engels, 1987d, p. 87; and Marx and Engels, 1990, p. 506.

[30] This argument is similar to that formulated rather briefly by Cohen. Cohen, 2000, pp. 148-150. For Cohen however, class struggle and class interest is key in changes in relations of production. Cohen, 2000, pp. 292-296. Societal selection on the other hand argues that class struggle accounts can explain why it is that a change in relations might occur in one place or moment rather than another. But societal selection does not require class struggle to sustain the thesis that relations of production which fetter the development of the forces of production will be replaced by relations that do not. Essentially for societal selection the two explanations are independent but complementary. For Cohen on the other hand, his particular take on class struggle is a necessary part explaining why relations which allow greater development of the forces of production prevail over those that do not. This account was recognized as unsatisfactory by many of his critics and eventually by Cohen himself and he eventually reaches something like the view that I propose here, again described briefly. Cohen, 1986a, pp. 19-22.

circumstances chosen by themselves, but under circumstances directly encountered, given and transmitted from the past".[31]

Relatedly, this resolves the apparent conflict between the apparent technological determinism of historical materialism as expounded in the 1859 Preface and the Marxist call for political action. After all, if we know thanks to historical materialism that socialism will come about, surely all we need to do is wait. This is not so in the view that I am proposing. Socialism will eventually come about, yes, but it will require at least some amount of political action to make it come about. The absence of political action could entail that socialism, for which the stage is set, will arise only at an indeterminate point in the future. Not seizing the opportune moment, therefore, could lead to human stagnation and suffering which could otherwise have been avoided.

Therefore, my thesis aims to resolve two major difficulties posed to a historical materialism that emphasizes the primacy of the forces of production. Firstly, it aims to provide a compelling defense of the four fundamental theses mentioned above. And second, it aims to reconcile the forces-of-production account of historical materialism with class struggle analysis and human agency. With these, and building on the work of Cohen and Carling, I hope to make a contribution to the Marxist research program.

*Chapter Outline*

This thesis is divided into 7 chapters that seek to tackle various aspects of the issues and themes raised above.

[31] Marx and Engels, 1979, p. 103.

Chapter 1 lays out the debate in Analytical Marxism which forms the foundation of societal selection. Societal selection builds upon two of the views in this debate and attempts to respond to critiques of these views posed by others. By reviewing the debate, I hope to make it clear how exactly societal selection builds on its predecessors, and to situate it within the Analytical Marxist debate on historical materialism.

Chapter 2 begins to present the theory of societal selection. It elaborates what the process of selection between societies entails and shows how it functions. To the underlying notion that societies with greater developed forces will tend to spread their practices through military conquest and economic competition, I add the concept of societal imitation. I argue that societal selection cannot present a realistic account of human history without coming to grips with the fact that societies often, voluntarily or involuntarily, adopt the practices of their neighbors. Far from undermining the selective mechanism I propose, however, imitation compliments it and allows us to gain an understanding of the main means by which selection occurs in human societies.

Chapter 3 concerns what I call “extra labor”. Extra labor is the amount and productivity of labor that can be mobilized towards competitive pursuits. It consists of all labor beyond that which is required to sustain the laboring class and maintain social stability and keep the ruling class in power. As such, it measures the resources a society has available to it in the competitive process. Extra labor is therefore societal selection’s analogue to natural selection’s fitness. It is the element that is being maximized in the selection process since it is what gives societies a competitive edge over others. I will also argue that extra labor is tied to the forces of production and that further development of the latter will almost always increase the former. Finally, this chapter will discuss the role of superstructures with regards to extra labor, given the importance of the cost of maintaining stability in the calculation of extra labor. In particular, I will argue that even with superstructures forming part of the equation, extra labor will remain very strongly tied to the level of development of the forces of production.

Chapter 4 discusses the relationship between forces and relations of production. This is where I begin to defend the compatibility and contradiction theses mentioned above (theses 1 and 3). This chapter will address the question of how forces and relations of production correspond and why their lack of correspondence leads to conflict. It will further give an account of the countervailing tendencies that a new set of relations needs to overcome in order to become the new dominant relations. And finally, this chapter will discuss the question of whether relations of production need to be optimal for the development of the forces of production.

Chapter 5 will discuss the transition from capitalism to socialism. The reason for discussing this transition specifically is that Carling's critics have generally, in various ways, expressed skepticism about the ability of a model of historical materialism based on competition to provide an argument for the end of capitalism. After all, capitalism is a system almost defined by its competitiveness and adaptability. In this chapter I will argue that transitions between relations of production will generally involve some combination of three factors, all brought about by the development of the forces of production: 1) the collapse of the old relations of production, 2) the emergence of forces of production that the old relations are less suited to develop than new relations are, and 3) the new relations of production becoming possible. I will then argue that these conditions can all be met in the transition from capitalism to socialism. This chapter will therefore serve both as an account of the transition to socialism and as an illustration of how transitions between relations of production in general might come about.

Chapter 6 relates the analysis thus far, which concerns a selectionist approach that aims to answer very broad questions about the direction of history and the process of change, to more immediate analyses of change. This chapter focuses in part on the question of class and class struggle and argues that societal selection provides the structural cause for the emergence of a new set of relations of production while class struggle can provide a proximate cause. These are two complementary levels of analysis each of which is fruitful in its own way and each of which is able to

answer different types of question. This chapter will also discuss individuals and historical contingency and the ways in which societal selection leaves room for human agency while remaining able to defend the tenets of historical materialism. It insists on the ways in which the view being proposed allows for contingency in human history. Societal selection may set the conditions within which human action may or may not be fruitful or successful, and it may even lay out the conditions within which we might expect a certain human action, or set of theories to arise and be successful. But it does not predetermine that such action will take place. The conditions may be ripe for change but action is still required to make such change into a reality and change may be delayed if no action is taken to bring it about.

Chapter 7 rounds the discussion off by discussing some of the "novel" predictions made by societal selection. The role of this will be twofold. First it allows me to defend the claim that societal selection constitutes a theoretically progressive addition on the Marxist research program, in other words, that it expands the ability of the Marxist research program to make predictions. Second, elaborating the evidence-vulnerable predictions that societal selection is committed to provides avenues for supporters to attempt to corroborate the theory and for skeptics to throw the theory into doubt. As such, this chapter will be useful whether or not one is committed, as I am, to the view that the social sciences should aim to approach as much as possible the explanatory power of the natural sciences.

# Chapter 1: Intentionalist and Selectionist Historical Materialism

Despite its importance to their works, Marx and Engels wrote surprisingly little about the theory of historical materialism. There are examples of its usage scattered throughout Marx and Engels' writings, but nowhere do they provide a complete theoretical elaboration of this theory which was so fundamental to their work. In what is often considered the definitive text on the matter, the Preface to *A Contribution to the Critique of Political Economy*, the relevant material is about two and a half pages long.[32] This Preface, however, in spite of its shortness, provides the outline for a compelling theory.

The Preface is not without its critics, even, or perhaps especially, among Marxists. Many authors believe it is incorrect to see the Preface, at least as it is traditionally interpreted, as presenting Marx's view of historical materialism. Richard Miller, for instance, argues that the relations of production play a far greater role in the course of history than most interpretations of the Preface allow.[33] Arthur Prinz goes even further to argue that the Preface was not really meant to be a representation of Marx's theory of history, at least not a full one. Instead, he argues, it is a text carefully crafted to help get the rest of the work past tough German censorship. Particularly striking to Prinz is the complete lack of the notion of class and class struggle in this Preface, a notion key to Marxism.[34]

Whether the Preface does indeed represent Marx's views is not a question I will address in great detail in this work. No matter the extent to which Marx believed what he wrote in the Preface,

[32] Marx and Engels, 1987d, pp. 263-265.
[33] Miller, 1981. See for instance p. 100: "Whenever we look in Marx's economic histories, the relations of production and the processes they generate play a basic, independent role in explaining changed in productive forces."
[34] Prinz, 1969, p. 449.

it has generated some interesting and valuable views of historical materialism. However, both of these critiques include substantive points worth considering. The extent of the independence of the relations of production is a question worth considering, and a view that does not leave some room for such independence will be difficult to defend in the face of differences between various countries with similar levels of development of the forces of production. Similarly, if the theory does not accommodate class struggle in a role of some importance, then it flies in the face of an important element of Marxist thought. Class struggle plays an important role in Marxist analysis and I, for one, would only reluctantly abandon it. However, neither of these concerns warrant rejecting the Preface as a coherent, if incomplete, view of historical materialism. And in view of the vast potential for a theory for providing the means of understanding and explaining history, it would be a shame to reject it outright, as opposed to trying to complete it in a satisfactory manner. Such a completion is one of the goals of this thesis.

The theory, as presented in the Preface, is that the relations of production in a given society are those that are "appropriate to" the level of development of the forces of production and from both of these "arises" a superstructure that "corresponds to" the relations of production. As the forces of production develop, they eventually begin to become fettered by relations of production which cannot adequately make use of them or continue to develop them. In this case the relations of production will be replaced with new ones which allow the further development of the forces of production. The nature of this correspondence and the mechanisms by which all of this is supposed to occur is not, however, elucidated. Furthermore, Marx and Engels do not describe in detail how the development or causal primacy of the forces of production can be explained.

G.A. Cohen's KMTH[35] attempted to explain the primacy of the forces of production. It kicked off a sustained debate about the defensibility of the primacy of the forces of production. And while this debate has died down in recent years, it was certainly not resolved. Is there some mechanism

[35] Cohen, 2000.

which might guarantee the development of the forces of production? Why do relations of production that fetter the development of the forces of production become replaced by new ones which foster this development? At stake is nothing less than the crux of Marxist social analysis and one of the most promising social scientific theories currently available to explain social and historical trends. In the following chapter I will present the two main means by which proponents of historical materialism attempt to explain the development and primacy of the forces of production. I call the first the intentionalist view and the second the selectionist view.

In the following I will use definitions of forces of production, relations of production and superstructure largely drawn from G.A. Cohen's KMTH. This groundbreaking work presents arguably the most complete elaboration of Historical materialism to date and the theories I propose here are meant to build on this work. I believe Cohen provides the best analytic presentation of these key concepts to historical materialism and I will summarize them here very briefly. Forces of production are the elements used to productive effect in the process of production.[36] This includes labor power and means of production.[37] Including labor power entails that the knowledge of techniques, technology, and ways of organizing of labor used in the process of production are also included.[38]

[36] Note that this excludes elements that make production socially possible. Soldiers guarding a production site, morals, laws, etc. are not used to productive effect in the actual process of production, whether or not they may be indispensable to said process given the context, see Cohen, 2000, pp. 32-33.
[37] Cohen, 2000, p. 32.
[38] Cohen, 2000, p. 45. Adding work relations to this list is a slightly tricky question and has caused some confusion. Some, such as Little, note that work relations are not part of relations of production because relations of production are "social", which in Cohen's definition means that they entail an ascription of rights and powers, which is not true of work relations. See Little, 1986, p. 45; and Cohen, 2000, pp. 93-94. Others, such as Miller, argue that work relations are not part of Cohen's definition of productive forces because to be a productive force requires, for Cohen that something be used and owned. Miller, 1981, p. 102. And indeed, the ability to own and use a productive force plays a role in Cohen's view as I will note below. But if Miller is right this would pose a problem. Such an exclusion would mean that something as revolutionary to productivity as the division of labor in factories does not count as a force of production. Miller 1975, pp. 397-398. Both views of Cohen, however, are partially mistaken. Cohen does indeed view work relations as material relations of production distinct from the economic structure. Cohen, 2000, pp. 111-112. However, this does not entail for Cohen that they are part of the forces of production either. Rather "knowledge of ways of organizing labor is a productive force, […] but the relations established when that knowledge is implemented are not productive forces". Cohen, 2000, p. 113. Cohen's reasoning is that it is the knowledge and not the relations which are owned and used in the productive process and not the relations themselves. This distinction is important for Cohen when it comes to discussing some ways in which productive forces explain productive relations. Cohen 2000, pp. 166-169. Cohen therefore considers knowledge of ways of organizing labor to be a productive force in the same way that technical and technological knowledge are.

Relations of production are "EITHER relations of ownership of the productive forces or persons OR relations presupposing such ownership".[39] The superstructure is composed of the "non-economic [facts or phenomena] whose character is explained by the nature of the economic structure".[40] Importantly for this work, I will take this to include measures that grant stability to relations of production as I see this to be a major functional role of the superstructure.

## 1) G.A. Cohen and the Functional Explanation

G. A. Cohen's KMTH launched the modern debate among analytical Marxists around historical materialism and was the key text in reviving a view of historical materialism that purported to be able to explain the course of human history, if only in its broad trends. In KMTH Cohen lays out a comprehensive view of what historical materialism is and how it should be understood to operate. Furthermore, his definitions of many Marxist terms have been very influential, especially among analytical Marxists, even though some of these have been challenged and corrected in response to critique.[41] I myself am using definitions of forces of production, relations of production and superstructure taken directly from Cohen.

A key element in Cohen's work, that is shared by most analytic proponents of historical materialism, is that the primacy of the forces of production can be established using the functional explanation. A functional explanation is an explanation of the existence, preponderance, or properties of an entity by the function it serves. A function of an entity is a purpose it fulfils in relation to another entity. The function of a chair is to serve the purpose of providing a place to sit for human beings. Similarly, in one of Cohen's favored examples, birds have hollow bones to allow

[39] Cohen, 2000, p. 35. Ownership here means effective control.
[40] Cohen, 2000, p. 216; and Cohen, 1988, pp. 178-179.
[41] See for instance Cohen, 2000, chapter 12.

them to fly. Those hollow bones developed to serve a function (assisting flight) and so their existence can be explained by the fact that they serve this function. Cohen argued that, in the Marxist view, the forces of production functionally explain the relations of production in a similar manner. The existence of a set of relations of production, and the properties of said relations, exist only because they help promote the development of the forces of production. When relations of production begin to fetter the forces of production, as purportedly occurred in late feudalism, a new set of relations of production will emerge which will allow the forces of production to develop further.

While a functional explanation could arguably be considered an acceptable explanation on its own,[42] a strong functional explanation will have a causal mechanism that explains how a function can be causal in this instance. In the case of the chair, the existence and properties of the chair could be functionally explained by pointing to the fact that the chair serves the purpose of allowing a person to sit. It was intentionally created in order to perform the aforementioned function and so exists only because that function needed to be fulfilled. Similarly, in the case of birds' hollow bones, natural selection provides a causal explanation for how the need to perform a function (flight) brings about adaptations which allow this function to be performed, or performed more easily.

This raises some questions about the relationship between causal and functional explanations. In each of the above examples I drew a causal chain from a function (providing a place to sit/facilitating flight) to the creation or changing of an entity (the creation of the chair/the development of hollow bones). This presentation might seem to imply that a strong functional explanation is a specific type of causal explanation. However, the causal chain one would generally use to describe the action above would not typically include function at all. In the case of the chair, for instance, one would generally begin with the intention and end with the creation. I wanted a place to sit, so I built a chair (an object with the property of providing a place to sit). The addition of

[42] See Cohen, 2000, pp. 271-272 and p. 286.

the function allows us to highlight another aspect of this process, however. While the straightforward causal explanation highlights the intention of the creator in this case, the functional explanation, by starting with the function, highlights the necessity that the object perform this function. Additionally, it shows that not just the creation, but the continued existence of the chair is predicated on it performing its function. If it no longer does so, because the function no longer needs performing, because it has been damaged, or because it has been replaced by another object which performs the function better, then its existence is in jeopardy. It is likely, though admittedly not certain, to be scrapped, destroyed, recycled, or in some other way removed unless it performs another function (such as an aesthetic one). This is not an implication that is easily drawn from the simple causal explanation outlined above. I would argue that these differences are enough for it to qualify as its own form of explanation. However, no matter the case, these differences at the very least establish the usefulness of a properly underpinned functional explanation in any argument where the performance of a function is important to the origin or persistence of an entity.[43] Historical materialism is, in my view, one such type of explanation. The fact that the relations of production have many of the traits they do in order to perform functions vis-à-vis the forces of production is key to the primacy of the forces of production. Additionally, it is very important for this version of historical materialism that once the relations of production cease to perform these functions for the forces of production (or, as I will argue, if they perform them less well than their competitors) they are highly liable to be abandoned in favor of relations which perform this function.

[43] As such I believe the functional explanation is more than merely a subspecies of causal explanation. Ultimately, however, very little is riding on this, since I propose a causal account to underpin the functional explanation in historical materialism regardless. As such, I believe my account of historical materialism would be acceptable even to someone like Elster, who does not regard the functional explanation as a distinct form of explanation and considers it to be only as substantiated as the causal explanation underpinning it. Elster, 1980; and Elster 1982. If the reader would prefer to regard this as a causal account, they are welcome to do so.

## 2) Intentionalism

The main means of defending a functional explanation are intention and selection. Intention can allow for a function to be causal as it means that an object or system was set up with the intention of performing a function. I might build a chair because I need something to perform the function of allowing me to sit on it. I created the chair with the intention of creating something to fulfill that function. I would not have created it were it not for the need for something to perform the function in question. Alternatively, something may only be kept because people intend to keep it due to its beneficial effects. I might have created a chair for aesthetic purposes but only decided to keep it because I realized that it allowed me a place to sit. Here the function explains not the creation but the continued existence of the entity in question.

But a functional explanation can also be defended by a selectionist mechanism. Darwinian natural selection is the canonical example for this. As Cohen's example goes, birds have hollow bones in order to facilitate their flight. In this case, the mechanism of natural selection selects for those birds who have the fitness enhancing trait of possessing hollow bones. The function of facilitating flight is what allowed these bones to be selected for and therefore to exist as a trait of birds. Some defenders of historical materialism, as we will see below, have attempted to use quasi-Darwinian mechanisms to establish the primacy of the forces of production. In this section, however, I will discuss intentionalist attempts to defend the primacy of the forces of production, as well as other intentionalist accounts of historical materialism.

Intentionalist views of historical materialism propose that the development and primacy of the forces of production can be explained primarily through intentional actions taken by human agents. In this view it is agents' choices, perhaps guided by rationality or the nature of various political, social, or economic structures, that explains the primacy of the forces of production. This makes explaining how agents arrive at these choices to be crucial for such accounts. The choice need

not be conscious, or intentional. The goal of agents need not explicitly be to develop the forces of production. Rather intentional historical materialist explanations will often explain how it is that the way in which humans make choices, or the way these choices are structured, leads to the development of the forces of production, or otherwise underpins the major theses of historical materialism. The opposite, a non-intentionalist explanation of historical materialism, would explain these theses without positing, or relying on, a theory of human action. This is the case for the other broad type of historical materialist explanation I will discuss: Selectionist historical materialism. I will begin however by discussing intentional explanations, beginning with Cohen's own initial view about the primacy of the forces of production.

*Cohen*

Cohen made many contributions in KMTH. Among other things, he laid out a compelling, clear, and detailed account of the various concepts involved in historical materialism, he revived a view of Marx's theory of history where the primacy of the forces of production was central, and he introduced the notion of functional explanation to historical materialism. There is good reason that KMTH formed the basis for a sustained academic debate. I will not discuss the detail of many of these contributions here, since they have been discussed in depth over the course of this debate. Instead, I will focus on Cohen's early account of the development of the forces of production and his account of why contradictions of forces and relations will tend to be resolved in favor of the forces of production.

Cohen's account was focused on the functional explanation, and he argued that a functional causality may be worth considering even when an underpinning causal explanation is not

forthcoming.[44] However, Cohen did make one attempt to show how exactly forces of production might functionally explain relations of production. Cohen argued that human beings have a generalized rational interest in development of the forces of production. This interest causes them to tend to act in such a way as to develop these forces. As such, the institutions that exist will tend to be those that satisfy this interest and allow the development of the forces of production, since they will tend to be those institutions which rational humans will tend to desire to create and defend.[45] Additionally, he argues, classes which allow greater development of the forces of production will tend to receive support from the rest of society due to this generalized interest. This means that as soon as a certain set of relations of production begins to fetter the development of the forces of production, there exists a basis for a new class which is better able to develop the forces of production to take power.[46]

Therefore, Cohen's attempted explanation of the functional primacy of the forces rests in rational self or class interest and rational decision making. The interest of all classes and all human beings in developing the forces of production ultimately underpins the development of the forces of production for Cohen. We develop the forces because we prefer greater developed forces (and their greater ability to satisfy our wants). Additionally, when a set of relations begins to fetter the development of the forces of production, classes will tend to abandon the old ruling class and ally the new due to the promise of greater developed forces of production. This explanation is

[44] Cohen, 2000, pp. 271-272 and p. 286.
[45] Cohen, 2000, pp. 150-154 and pp. 160-161.
[46] Cohen, 2000, pp. 148-150, 292-293. Cohen also discusses "competitive elements" in the early growth of capitalism. However, it is not clear that he means this to be generalized outside of capitalism, and if so, how. The only statement that appears to be generalizable is the first: that the rational interest that all have in stable and thriving production will attract allies to the class who can meet the demands of production. This is further underlined by the fact that Cohen takes the distinctive contradiction of capitalism to be that "even if and when it becomes possible and desirable to reduce or transform unwanted activity, capitalism continues to promote consumption instead, and therefore functions *irrationally*, in the sense that the structure of the economy militates against optimal use of its productive capacity". Cohen, 2000, p. 310, emphasis added. The advantage of socialism here is not that it is more competitive, but rather that it allows for more rational use of productive capacity. Presumably, this would allow the working class to appeal to this rational interest in the fact that we as human beings would prefer that increased productive capacity led to greater leisure as well as output, in order to bring other classes onboard with its project.

intentionalist since it requires a theory of human agency. For this explanation to work individuals and classes must consistently tend to make decisions to support greater developed forces in order to better satisfy their needs. They may not think of it as such, most likely they would not think using the category of forces of production for instance. They might simply note that certain tools, certain institutions, or certain economic systems permit greater satisfaction of need, and act accordingly. They need not note that this greater satisfaction comes from greater developed forces. But ultimately this explanation relies on them making intentional decisions that develop the forces of production due to their rational interest in the development of the forces of production.

Perhaps unsurprisingly, Cohen's defense of the functional explanation provoked a heated debate around historical materialism. Critics have sought to show the ways in which this rational preference is not sufficient to underpin the development of the forces of production.

*Intentionalism Outside of Cohen*

*a) Robert Brenner's critique of Cohen*

Perhaps the most universal critique of Cohen relates to his use of a general rational interest in development of the forces of production in order to underpin the development of the forces of production. As many critics have noted, such a generalized interest is unlikely to translate into transformative action for a variety of reasons. More specific class interests may outweigh such a generalized interest, class structure and class relations may incentivize other means of making material gains or may preclude development of the forces of production as an effective way of making material gains, classes with an interest in developing the forces of production may find themselves incapable of doing so, this interest in development of the forces of production may not

outweigh the costs of revolution.[47] The list of critiques goes on, and there is not enough space here to go into each critique in the depth it deserves. Some of these critiques will, furthermore, appear in later portions of this work. Nor would such in depth discussion be particularly fruitful. The fact that Cohen's generalized rational interest view is deficient appears to have been recognized by all participants in the debates around KMTH, including Cohen himself.[48] As such I will limit myself to discussing three critiques of Cohen which I believe to be particularly salient, and which offer different alternative views to Cohen that remain within Analytical Marxism. The first of these is the critique proposed by Robert Brenner. This critique is important both because it comes with an alternative and influential Marxist view of historical change, and because it will be important to the elaboration of Carling's competitive primacy.

Brenner argues that those (such as Cohen) who argue that human rationality entails a continuous increase in the development of the forces of production, are mistaken. While this tendency may be true in capitalism, it is not true in other social systems. Capitalism requires producers to produce at the least cost on pain of being competed out of the market. It further allows capitalists a great amount of control over the process of production as they own the means of production and have powerful means of ensuring that workers will produce in the manner that capitalists desire, such as their ability to fire workers. Capitalists therefore have both the pressing need and the means of implementing more efficient forms of production.

There is, however, no corresponding class possessing either the ability or the need to increase productivity in pre-capitalist societies. In Feudal societies for instance, Feudal lords do not have a pressing need to increase productivity. They are not generally competing to sell on a market and so if they were not to adopt the most efficient means of cultivation, they would not find

[47] See J. Cohen, 1982, pp. 256-257; Elster, 1980, p. 124; Levine and Wright, 1980, pp. 56-60; Gottleib, 1985, pp. 10-11, 17; Brenner, 1986, p. 46, footnote 13; Carling, 1993, pp. 38-39; Nolan, 2006, pp. 162-163; and Laibman, 2019, p. 8. There have been other critiques of Cohen, such as Sayer's critique which is based in dialectics, which I will not discuss here since societal selection does less to respond to those critiques. Sayers, 1984.
[48] Cohen, 1986a, p. 22.

themselves particularly worse off. Furthermore, if they were to try and improve the tools and techniques used by the peasantry, they would only have direct coercion as a means of enforcing this change. Such direct coercion would be very costly to implement and likely outweigh any benefits of new technology.[49] The peasantry meanwhile has little motive to accept any change in agricultural techniques. Even if they could get together the resources to invest in new technologies, they have no guarantee that any of the increased production would be received by them instead of being collected as additional taxes. Furthermore, Brenner claims that the main goal of a peasant in the Middle Ages was self-sufficiency as opposed to production for the market. The market for agricultural products was not particularly reliable either as a place to buy or sell crops, and it was a much safer bet to diversify crops in such a way to be as self-sufficient as possible, only selling surpluses. Any techniques which required specialization, which would include most modern agricultural techniques, would have been antithetical to the goal of self-sufficiency and therefore resisted by the peasantry. [50]

As such neither of the major classes had much motive or means to develop their agricultural techniques and tools. The Feudal lords, unable to do so, would likely instead seek to strengthen their means of coercion and expand their holdings as means of increasing their revenue and remaining militarily competitive with other lords. The first can allow them to extract a greater surplus from their peasantry and the second can allow them to extract surpluses from additional peasants (through acquisition of new land). Both are achieved through military development and expansion of military retinues, although expansion could also be achieved by rendering waste land arable.[51] Rational action by both classes therefore resists the development of the forces of production. And Brenner argues that even urban classes, such as the guild artisans and merchants, lacked good reasons to open themselves up to market competition as their economic security relied on limited

[49] Brenner, 1986, pp. 30-31; Brenner, 2007, p. 70.
[50] Brenner, 1986, p. 29; Brenner, 2007, pp. 67-70.
[51] Brenner, 1986, pp. 31-32. See also Brenner, 1976, pp. 31-33; Brenner, 2007, p. 71.

that competition.[52] This does not necessarily entail that forces of production did not develop over the course of pre-capitalism. There do seem to have been some undeniable developments of the forces of production occurred in pre-capitalist societies.[53] Rather it suggests that such developments must find their origin outside of rational action within pre-capitalist relations of production, that if there is a tendency for forces of production to develop it too must be sought elsewhere, and that the relations of production will tend to resist their adoption.[54] This undermines Cohen's argument that a rational preference for greater developed forces is what causes transitions between relations of production, since pre-capitalist societies will find any rational interest in such development outweighed by their class interest against it.

Given that Brenner does not explain transitions between relations as the consequence of a generalized rational preference in development of the forces of production, where does Capitalism come from in Brenner's account? He argues that it is an unintended consequence of class struggle within Feudalism. A certain and specific balance of class forces must be present in order for it to be rational for feudalism to begin the process of developing towards capitalism.

Brenner argues that class conflicts become most intense at periods of crisis. For Feudalism, this is demographic crisis brought on my feudal class relations. Given that the feudal lords press to extract more from the peasantry when they require resources, they will tend to reach levels of extraction which reduce their peasantry closer and closer to subsistence level. This makes it more and more difficult for peasants to afford animals, for tasks such as plowing, leading to land formerly reserved for animals being turned into farmland. Therefore productivity decreases for two reasons: fewer and fewer peasants are able to use animals in agriculture and more and more are cultivating land formerly reserved for animals and, on average, less suitable for farming.[55] Brenner would likely

[52] Brenner, 2007, pp. 75-76.
[53] See for instance Wickham, 2008, pp. 14-16.
[54] I will argue that the tendency to develop comes from the process of societal selection, which is indeed a process external to rational action within pre-capitalist relations of production.
[55] Brenner, 1976, p. 33.

also be sympathetic to the argument that the splitting of land into smaller and smaller parcels due to inheritance laws contributed to this problem as peasants increasingly come to have less and less land.[56] Lesser productivity leads to a crisis in food supply, which in turn leads to a demographic crisis as not enough food is available for the population.

Once these crises occur however their impact on the course of Feudalism is far from certain. It is possible that peasants could use the fact that relatively few of them remained to exert power and demand greater freedom. Lords find themselves facing a labor shortage and must placate the peasants if they want to keep them. However, this decreased population also means decreased revenue for Feudal lords and therefore a strong motivation for them to crack down even further on the peasants. Among other things, this crackdown could render it impossible for peasants to move, completely undermining the power peasants might otherwise have gained from their scarcity. Both outcomes make some sense from a class standpoint. The determining factor, therefore, was which side could take the upper hand in the class conflict.[57] Key here is the history of class struggles before the crisis and the position that both classes were in at the outset.[58] And since neither class on its own had a rational interest in development of the forces of production, only a rather specific balance of class forces could yield capitalism.

Brenner illustrates his argument about the dynamics of pre-capitalist societies using the cases of Poland, France and England as examples. All three had differing responses to demographic crises endemic in feudalism. In Poland, where the feudal lords achieved the upper hand in the aftermath of this crisis, the lords cracked down on the peasantry and sought to extract greater surpluses.[59] In France, on the other hand, the peasantry was able to secure a large amount of concessions vis-à-vis the nobility, granting them greater freedom and property rights.[60] Neither's

[56] Brenner, 1986, p. 52.
[57] Brenner, 1976, pp. 34-35.
[58] Brenner, 1976, p. 36.
[59] Brenner, 1976, p. 23; Brenner, 2007, pp. 93-95.
[60] Brenner, 1976, pp. 54-55; Brenner, 2007, pp. 92-93.

victory lead to greater development of the forces of production however, because neither is really interested in achieving such development, for the reasons mentioned above. In England however, the result of class struggle was a little more mixed, leading to the unintended outcome of the development of capitalism. The peasanty achieved major concessions, such as greater mobility and often gaining the status of free tenants. In response to this, and the lower rents this entailed, feudal lords used the state and the courts to allow them to enforce variable rents and arbitrary fines on the transfer of peasant land, thus limiting the peasantry's right to inherit land. This in turn meant that feudal lords became effective owners of the land, since they could impose exorbitant rents on them or high enough fines upon inheritance to force the peasants off any land they wished, and peasants now found themselves competing for leases. The peasants became separated from the means to produce their own subsistence, beginning their proletarianization and the development of capitalism in England.[61]

If rational action in pre-capitalist societies is often antithetical to development of the forces of production and capitalism only developed as an unintended consequence, then a rational action model heavily implies the possibility of permanent stagnation. If we accept Brenner's argument, there is little apparent reason to believe that there is a tendency towards development of the forces of production in pre-capitalist societies, and capitalism only arose due to peculiarities of feudalism and the historical and cultural particularities which determined the balance of class forces and the outcome of class struggle. In Brenner's account, class struggle is the motor of history and there is no reason to believe that it will turn out in favor of those with greater productive forces. Brenner, therefore, poses great difficulty to any theory of historical materialism relying on rational action

[61] Brenner, 2007, pp. 95-99. Brenner previously had a slightly different account of what occurred in England (that involved feudal lords using fines to force peasants off their land and lease them to proto-capitalist tenants who reemployed the peasants on the basis of wage labor), but the takeaway from both accounts remains the same: that capitalism was a result of unintended consequences of feudal classes acting in their own interest responding to crisis. Brenner, 1976, pp. 46-47. Brenner's later 2007 account also discusses a broader range of cases, but I have limited it to his three original cases for simplicity's sake.

which does not take adequate account of class struggle and class structure, both of which have the ability to make it irrational for development of the forces of production to proceed.

*b) Levine and Wright*

Andrew Levine and Erik Olin Wright present a more theoretical critique of Cohen centered around his defense of what they consider the five central theses to Cohen's argument for the primacy of the forces of production. This critique will be crucial to chapter 4, so I will save the bulk of the discussion of this critique for that chapter. Their critique, however, emphasizes the limitations of a trans-historical notion of rationality. Levine and Wright argue that rationality is always dependent on the class and economic structure one finds oneself in and as such cannot always be relied on to favor the development of the forces of production.[62] While we may have a generalized interest in the development of the forces of production, our more powerful class interests will likely take precedence and may well provide us with a much stronger rational interest in the stagnation of the forces of production. Additionally, a rational interest in change does not imply the capacity to change, nor an interest in implementing change. A subordinate class may have an interest in change but be unable to implement this change due to internal fragmentation. And even if they overcome this hurdle, individuals in this class still need to contend with the fact that the process required to implement this change may be costly enough to outweigh their interest in change. Revolutions often pose a risk of death to participants and often entail a temporary decrease in standards of living that may not be made up during the revolutionaries' lifetimes.[63]

In response to these problems, Levine, Wright and Sober propose a more limited "weak" version of historical materialism, one which has less definitive conclusions but is easier to defend in

[62] In the broad strokes of their critique, therefore, they take a similar approach to Brenner, as do most critiques of Cohen.
[63] See Levine and Wright, 1980.

their view. They argue that while we cannot show a direct tendency for the development of the forces of production, it is still possible to maintain directionality in historical materialism. This is because they view the development of the forces of production as "sticky downwards".[64] Loss in development of the forces of production is exceedingly difficult. Levine and Wright argue that this is true for four reasons. First, while groups in society may have interest in the stagnation of the forces of production, few if any will have an interest in reducing the level of development of the forces of production. Second, knowledge of productive techniques is generally quite difficult to destroy. Third, needs come to depend on prevailing technologies, meaning people will generally hold a strong interest in at least maintaining these technologies. And finally, Levine and Wright claim that there are always individuals or groups in society which have an interest in development of the forces of production.[65] While there might be a case for finding issue with one or two of these justifications, it is quite difficult to disagree with the general thrust of their argument. The knowledge of productive techniques, which constitutes the level of development of the forces of production, is not easily lost. This is both because information is rather difficult to eradicate, since it can be spread among many objects (such as books) and people, and because there will generally be much greater interest in maintaining or developing them than in reducing them. And if forces of production are significantly more difficult to reduce than they are to develop then this leads to a directionality of a sort.[66] Over the long term, we might expect this to entail a slow increase of the level of development of the forces of production. However, this leaves open the very real possibility of stagnation. Levine, Wright and Sober cannot discount their own three objections to Cohen, that classes may have overriding interests in opposition to development of the forces of production, that classes with interest in development may not be able to implement this development, and that interest in development may not be able to make up for costs of change.[67]

[64] Peter Frase also adopts a similar view. See Frase 2016, pp. 149-150.
[65] Wright, Levine and Sober, 1992, pp. 81-82.
[66] Wright, Levine and Sober, 1992, p. 94.
[67] Wright, Levine and Sober, 1992, pp. 82-83.

Their argument may be hard to fault, but the fact that it is a self-consciously "weak" version of historical materialism means that it is not able to defend some of the stronger claims of historical materialism.[68] For instance, there is no reason to believe, in their view, that the forces of production will retain a tendency to develop which will, ultimately, overcome other factors. This entails that it is possible to halt their version of history at a certain set of relations of production permanently. One gets the impression with Levine and Wright that they see this as an especially realistic possibility for capitalism.[69] Of course, this does not entail that socialism will not come about. But it does mean that powerful factors outside of the broad scope of the forces and relations analysis would need to be brought to bear for capitalism to give way to socialism. This may hold true, but as is the case for most weak theories, if a stronger version of historical materialism can be defended, it is worth defending it. The stronger the version of historical materialism, the more explanatory power it holds and the more it can be used as a guide to political strategy and political action.

### *c) Laibman*

David Laibman does not explicitly seek to provide grounding for the functional explanation in historical materialism, and he often attempts to show the ways in which his theory is dissimilar to Cohen's. However, whether intentionally or not, Laibman provides an argument that could defend the use of the functional explanation. Laibman argues that a theory of historical materialism need only defend two principles.[70] This first is the correspondence principle, which states that forces and relations of production correspond to each other. They must be "mutually shaping and conditioning"

[68] See Wright, Levine and Sober, 1992, p. 95.
[69] Their objection to the notion that relations of production must correspond to a limited range of forces of production is that capitalism may well be viable for all future levels of development of the forces of production. Levine and Wright, 1980, p. 60. Additionally, the barriers to action they propose relate to the modern working class's difficulties in organizing. Levine and Wright, 1980, pp. 65-67. More generally, their theory appears designed to leave the future fundamentally undetermined precisely because they see capitalism holding on to power indefinitely as a distinct possibility. Of course, this is not necessarily a point against them, since they may be right after all.
[70] Laibman, 2008, pp. 18-24.

and "form a consistent whole".[71] The second necessary principle is the development principle. This states quite simply that the forces of production have an inherent tendency to develop while the relations of production do not.[72]

Indeed, together these two principles (corresponding to Levine and Wright's theses 1 and 2) do allow for the directionality and interdependence necessary for historical materialism and do establish the primacy of the forces of production, so long as the development principle is able to overcome the possibility of class relations preventing such development. If the forces and relations are interdependent, and the forces possess an inherent tendency to develop while the relations do not, then the structure that emerges is one where the forces of production advance and drag the relations of production along with them. The forces of production are therefore the motor of history. It is the tendency for the forces of production to develop which causes history to move forward, forcing the relations of production to change with them. As such they hold explanatory primacy over the course of history. [73] Therefore, to put this in terms of the functional explanation, the relations of production are as they are in order to perform whatever functions are required of them by the level of development that the forces have reached. The interdependence may work both ways and each may be performing functions relative to the other, but since the forces of production have a continuous impetus towards development, the relations of production can be understood to be adapting to the forces, as opposed to the other way around.

Can these two principles be defended? This is the difficulty posed by Laibman's view. The first principle is for Laibman impossible to defend on its own but can only really be established as his entire theory is established. The key to showing this correspondence in any particular case always

[71] Laibman, 2008, p. 18.
[72] Laibman, 2008, p. 20.
[73] Laibman would argue that what he is in fact doing is to explain what the notion of primacy is intended to explain. Laibman, 2008, p. 20. Nonetheless, this argument does also defend the primacy of the forces of production. In fact, some critics of Cohen, such as Ruben, take Cohen to be grounding the primacy of the forces of production in the same two principles that Laibman is defending here. Ruben, 1981, p. 229. Indeed, Cohen himself appears to say as much. Cohen, 2000, p. 158.

rests in part on elaborating how the forces and relations of production condition each other in that specific instance. In other words, showing the correspondence of forces and relations in feudalism would require an analysis of the dynamics of feudalism, showing this correspondence for capitalism would require and analysis of the dynamics of capitalism, and so on for other relations of production.[74] Some claims, however, can be made from the outset. The first is that the productive forces need to be at a certain level for class societies to exist in the first place. There must be a surplus product if a ruling class of non-producers is to be able to form.[75] The second claim is that varying levels of development of the forces of production require different systems of "incentive and control".[76] These systems will need to develop and change with the development of the forces of production. If machinery is incompatible with feudal relations, then as machinery develops so must capitalist relations.

Laibman defends the second principle (the development principle) by arguing that "[…] all we need is the proposition that in the range of varied conditions in which production takes place throughout history, a significant number of situations will exist in which intentional actions by individuals within classes or strata that have the power to act on the PFs [productive forces] will result in PF transformation, and that only rarely will PF changes result in loss of productivity or efficiency".[77] The development principle is therefore also dependent on showing that in most cases there will be structural incentives or impetuses towards development of the forces of production. These intentional actions need not be performed with the direct intent of developing the forces of production. They could be for all sorts of other motives. Relations of production on the other hand tend towards stasis as they are enshrined in symbolism and cultural values, and because the ruling

[74] "At this point, before we have elaborated the theoretical stages of AST [Abstract Social Totality], we must be content with some general and illustrative answers. But the correspondence principle can only be finally confirmed (if at all) by means of the fully elaborated theory, including articulation among its different levels of abstraction." Laibman, 2008, p. 19.
[75] Laibman, 2008, p. 19.
[76] Laibman, 2008, p. 20.
[77] Laibman 2008, p. 22.

class has a strong interest in the continued existence of the relations of production which places them in the ruling position.[78]

The difficulty with this defense of the development principle is that it is not clear that the impetus towards movement, not yet very clearly defined, will be enough to overcome the impetus towards stagnation. In the terms laid out by Levine and Wright, Laibman has not provided a clear statement of the transformation thesis. Without a transhistorical rationality moving the forces of production forward Laibman must again rely on an analysis of the specific dynamics of different stages of human history.

All of Laibman's arguments, therefore, are ultimately supported by the notion that an analysis of the stages of production that have existed will yield the results he intends. It must be that capitalism, feudalism, slavery, primitive communism, and socialism all have their own mechanisms assuring correspondence between forces and relations of production and for all of them to have dynamics which, overall, foster the development of the forces of production. This is a very heavy burden of proof. He must be able to show for all stages of development of human history that there is both interdependency between forces and relations and that there is an internal impetus towards development of the forces of production which either exists or will come about as the interplay between forces and relations takes its course. If this is not the case, then it is merely the product of happenstance that we have arrived where we are in history. This would be the case for instance if we were to adopt the view of Robert Brenner as stated above, since he argues that Feudalism structurally disincentivizes development of the forces of production and that the move towards capitalism was simply the product of a very specific set of class relations that occurred for historically contingent reasons in England.

A thorough critique of Laibman, therefore, would require a historical analysis that is beyond the scope of this work. It would seem highly credible, however, to argue that there are many

[78] Laibman, 2008, p. 23.

situations in which stagnation may well have been permanent, or at least not showing any clear internal structural impetus towards change. Laibman accepts this but argues that this is not important so long as it is the case that in there are other places in which the transformation of the forces of production will occur. [79] This occurs as human agents defuse or adopt knowledge and certain cultural traits.[80] But he does not show why the traits which spread should be, or should tend to be, the traits of societies with greater developed forces of production.

Laibman is correct in pointing out the importance of the diffusion of cultural traits and knowledge. Indeed, this will be at the core of the notion of imitation that I discuss later in this chapter. However, his analysis lacks a strong account of why the cultural traits and knowledge of societies with greater development of the forces of production should be those that spread. Without such a mechanism it is entirely possible for traits of stagnating societies to be the ones which spread, causing mass and possibly permanent stagnation. This mechanism, I believe, can be found by appeal to selectionism.

## 3) Selectionism

Selectionist historical materialists argue that historical materialism rests on a selective process akin to Darwinian natural selection in some way.[81] Marx and Engels believed that there was some similarity between their theories and those of Darwin, with Marx going so far as to say that

[79] Laibman, 2008, p. 20.
[80] Laibman, 2008, p. 22.
[81] Darwin himself does attempt to apply some of the reasoning of natural selection to the development of human society, norms, and morals in the *Descent of Man*. His conclusions are certainly not historical materialist, and I do not endorse many his views on the subject, but he does prefigure some of the insights of societal selection. He notes for instance that imitation is important for human beings and their development in a way that it is not for most other animals. Additionally, he argues that for human beings the selectionist process may often play out on the level of the society instead of the individual. Darwin, 1981, pp. 161-162. The importance of this should not be overstated of course, Darwin argues for very different conclusions than I do and the passages I have referenced concern pre-"civilized" peoples.

"[The Origin of Species is] the book which contains the basis in natural history for our view".[82] Selectionists argue that this was more than an offhand remark and the two theories are fundamentally similar. Both make use of a mechanism of selection. The functional explanation in historical materialism should be underpinned in the same way that it is in Darwinian theory, by a process which selects for a trait. In this case, however, what is being selected for is not fitness, but greater levels of development of the forces of production.

Relatively few authors have taken this approach to defending the functional explanation in historical materialism. In this section I will focus on the work of Alan Carling, as he is the only of the selectionist theorists I will draw from.[83] But I will give this theory and its critics close attention here since societal selection relies on the same mechanisms and is designed in part to respond to Carling's critics. The theory is also deserving of close attention in its own right. Even if it possesses certain limitations, it is at the very least able to explain what are arguably the two most important transitions in human history (the transitions between primitive communist societies and slave societies and between feudal societies and capitalist societies) in way that, to my knowledge, has not been called into serious question even by critics. Additionally, it provides a powerful way to reconcile the general view that Cohen proposes with Brenner's critique and with class analysis more generally.

[82] Marx and Engels, 1985a, p. 232.

[83] The other main author who has used evolutionary theory to defend historical materialism is Paul Nolan, whose work makes much more direct use of Darwinian evolution. Nolan, 2002a. Christopher Bertram is also worth mentioning in this category as he wrote an article which anticipated some of the ideas which Carling would later develop. Bertram, 1990. Finally, there is something of a precedent for this sort of thinking in Plekhanov. However, he only uses a selectionist argument with regards to the correspondence between base and ideology. Plekhanov, 1947, pp. 149-150. When discussing the reasons for development of the forces of production his analysis is based on class interests. Plekhanov, 1947, p. 154.

*Primacy Through Competition: Alan Carling*

Carling argues that the primacy of the forces of production can be established by what he calls competitive primacy. Competitive primacy states that when two societies with different levels of development of the forces of production are in competition, the one with the greater level of development will tend to be the one that prevails.[84]

Carling argues that there are two "branches" to this competition.[85] The first is the market branch. This corresponds to economic competition. There is a clear relationship between the level of development of the forces of production and market competition. Societies with greater levels of development of the forces of production will be able to produce more at lower cost giving them a powerful edge wherever market competition occurs. While capitalist competition makes it clear that this sort of competition for greater development of the forces of production can be a very powerful motor for development of the productive forces, market competition is also quite limited in scope. It requires widespread production to be for the market, which is not true for much of human history before capitalism. Goods may have been sold at markets, but they were generally surpluses, most producers having some means of self-sufficiency.[86] As such, market competition is a relatively unimportant factor in pre-capitalism.[87] And since Carling's view is most critiqued in its explanation of pre-capitalist development market competition will rarely be featured in the rest of this discussion.[88]

[84] Carling, 2002, pp. 108-110.
[85] Carling, 2002, p. 110.
[86] Brenner, 1986, pp. 31-32. See also Wood, 2002, pp. 95-97.
[87] Anderson also argues that feudal lords were more interested in the more immediate gains of warfare than the relatively small gains which could be made off the relatively slow growth of trade or increases in productivity. As such, market competition was unlikely to be a major focus of their efforts. Anderson, 2013a, p. 31.
[88] It is worth noting that Marx and Engels appear to have believed economic intercourse played a key role in the ability of developments of the forces of production to endure and not be lost due to natural disasters or wars. "It depends purely on the extension of intercourse whether the productive forces achieved in a locality, especially inventions, are lost for later development or not. […] Only when intercourse has become world intercourse and has its basis in large scale industry, when all nations are drawn into competitive struggle, is the permanence of the acquired forces of production assured" (Marx and Engels, 1975b, p. 67. "Intercourse" here

The second branch is both less straightforward and more important for the bulk of human history. This is the class/state branch. The notion here is that greater development of the forces of production will give societies an edge in military and political competition.[89] The difficulty here, as Carling notes, is that many other factors play an important role in military victory. Greater development of the forces of production would allow the production of more, and likely more advanced, weaponry, but many other factors play key roles in military conflicts. Luck, leadership, relative size of the societies that are competing (which effects the size of the armies they are able to field), and many other factors are all very important to the outcome of military conflicts. Societies with greater forces of production do not always and everywhere defeat their opponents militarily. Carling notes, therefore, that the best he can argue is that there is a bias for societies with greater levels of development of the forces of production to succeed in military competition.[90]

If a society with greater development of the forces of production has a greater chance to succeed militarily, then this gives them a greater chance both to endure in the face of their enemies and expand and to spread their ways of doing things, which will include their more advanced forces of production. This leads to a general tendency for the forces of production to develop, as any development will be likely to endure and spread at the expense of those who have not made this development. Crucially, knowledge of the exact causes of the development of the forces of production, or of the rise of new relations of production, is unnecessary to establish the tendency

---

is also sometimes translated as "commerce" as in Marx and Engels, 1985b, p. 72. Given that this intercourse clearly involves competitive struggle, it seems quite clearly to be economic intercourse). This appears to be very similar reasoning to Carling, although framed differently. While Carling claims that economic competition allows the development of the forces of production to endure and spread, Marx and Engels here appear to be claiming that competition allows developments of the forces of production to not be lost. The main difference is that Marx and Engels are only discussing economic intercourse as a means by which the relevant competitive struggle occurs, and appear to consider war only in its potential role as a destroyer of developments of the forces of production. Carling, on the other hand, takes war as being an additional locus of the sort of competition that can allow the endurance and spread of forces of production. As I will discuss in the next chapter, I would add imitation to the forms of interchange which allow for the maintenance and spread of forces of production.

[89] Carling, 2002, p. 110.

[90] Carling, 2002, p. 114.

for them to develop. [91] Such explanations of the emergence of forces and relations may be historical, class based, or take some other form. Just so long as some emergence of new forces or relations is possible, competitive primacy (and societal selection) can operate.

Indeed, one very powerful aspect of this theory is that it responds very effectively to Brenner's critique of Cohen. Carling can accept without difficulty the notion that Feudalism may entail, under normal circumstances, that no class will find it in their rational interest to develop the forces of production so long as it is at least possible for the forces to develop in any of the Feudal societies that are in competition with each other. So long as such development is possible then any society which does enact this development, even if it's purely by chance or for idiosyncratic reasons, will be likely to spread its practices to others. Carling can therefore accept Brenner's argument that pre-capitalist societies may not have an inherent tendency towards change, and even an inherent tendency to resist change.[92] No matter those internal dynamics, so long as some amount of development is possible, those societies which take on those developments will obtain a military advantage.

This also works very well for the transition between relations of production. In what he calls the "Feudal Fission thesis" Carling argues that it was highly probable that capitalism would arise out of Feudalism in Europe despite any bias towards developmental stasis it might have. The demographic crises in Feudalism generally entail heightened class conflict and contestation of elements of the feudal order. There are many possible outcomes that might solidify as the dust settles. Brenner argues that the outcome in England, which eventually led to the development of capitalism, was an unintended consequence of a class compromise and not the result of a tendency

[91] Indeed, as Perry Anderson notes, there is good reason to believe that Marx shared the view that historical materialism could not predict how exactly new relations could emerge. Anderson, 2013b, pp. 417 and 420-421.

[92] It can also accommodate many other views of the historic and specific emergence of feudalism, since it is agnostic about the immediate causes of the emergence of new relations. Rather Carling's view, and my own, argue that such an explanation is only part of any adequate explanation of the rise to dominance of a new set of relations of production. The other, which competitive primacy and societal selection attempt to address, is how, once emerged, these new relations are capable of surviving and spreading.

to favor development of the forces of production. This is problematic for an argument like Cohen's, which seeks to show that this outcome came about through rational action. But it fits easily into Carling's view, which is entirely agnostic as to how these outcomes come about. All that Carling requires is that the situation of class compromise which Brenner describes for England be possible. So long as it is, then all that is required is for England's class compromise, or something close enough to it, to emerge out of one of the many of Feudalism's demographic crises. Eventually it will, as historical events cause societies to respond in diverging ways to these crises. As Carling remarks, "there will always be an England".[93] And once the class compromise permitting the rise of capitalism does arise, it will possess a competitive advantage that allows it to spread.[94]

This theory does something which should appeal intuitively to Marxists. It allows class struggle, a very historically determined and sometimes contingent process, to be the cause of changes in relations of production while still maintaining the primacy of the forces of production. Class struggle gives the immediate account of why transformation occurred in this precise moment and why it occurred in the way it did. The development of the forces of production explains why such transformation was possible (and eventually inevitable given enough time) and why it was able to succeed. In other words, class struggle is the proximate cause of change while the development of the forces of production is its structural cause.[95] If Carling's theory is correct, it allows a reconciliation of Brenner and Cohen, of class struggle and historical materialism. But is it correct?

---

[93] Carling, 1991, p. 62.

[94] Carling, 2002, pp. 114-116. This process can even do without the arguments about feudal demographic crises, though in a more limited form. Wickham also adopts this argument that once capitalism emerges it will outcompete feudalism and become dominant. However, he does not believe that there was any reason to think that such a transition needed to happen, or that feudalism was really fettering the forces of production. This entails a model which like that of Carling, will almost certainly, with enough time, eventually end in capitalism, but in which feudal relations could endure indefinitely absent political action to change these relations. Wickham, 2008, pp. 20-21. I go a bit further than Wickham when I discuss fettering in chapter 4, as I do think that the longer fettering occurs, the more capable alternative relations are of outcompeting their predecessors, and therefore the more tenuous the old relations become. And I do believe that Carling is correct about the feudal fission thesis. But the model can function without the addition of the feudal fission thesis, since all that such selectionist models truly do on their own is to establish when the conditions are ripe for the rise of new relations.

[95] I will discuss this aspect of selectionist views in much greater detail in chapter 6.

*Critiques of Carling: Laibman and Chibber.*

Carling's theory is very compelling, and the view I will begin to develop in Chapter 2 is heavily indebted to Carling's competitive primacy. There are some important limitations, however, to Carling's theory.

The first, according to Laibman, is that Carling does not provide an account of the internal dynamics of systems such as feudalism.[96] Indeed he doesn't. But this is something that I have argued is a strength of Carling's theory; it can remain agnostic about the actual process of social transformation, leaving that to class analysis.[97] However, one can see how this might be considered a weakness as well, at least from a Marxist standpoint. Marxists do tend to argue that change comes from internal dynamics and contradictions of relations of production. However, whether or not this means that the internal dynamics of a society must be the sole cause of its transformation is an open question. Carling's theory allows for class societies that evolve, display internal contradictions, and do have causal importance in the evolution of society. Nevertheless, in his view, explanation of the development of the forces can proceed relatively independently of such detailed structural analysis.[98]

[96] Laibman, 2008, pp. 92-93.

[97] Carling and my views on the importance of international competition in historical materialism may in fact be a strength, for those authors who argue that many Marxists do not sufficiently account for the importance of international relations on the internal dynamics of societies and on transitions between relations of production (especially the transition to capitalism). See for example Teschke, 2005, pp. 3-4, 9, 13; and Anievas, 2015, p.43 (see footnote 2 for a detailed list of authors who take this view, though not exclusively targeted towards Marxists). Selectionist historical materialism does attempt to make international relations and international competition fundamentally important to the process of changes in relations of production, and so provides a start to theorizing the importance of international relations in the dynamics of historical materialism. However, many of the critiques brought up concern the fact that Marxists and other social theorists often tend to ignore the importance of international relations in the actual process of the emergence of new relations of production. This, as I will argue frequently over the course of this thesis, is outside of the purview of societal selection, as the latter aspires merely to explain the conditions under which new relations are likely to be able to endure and spread, not to explain the actual path to emergence they have historically taken, or will historically take.

[98] Again, this will be discussed at greater length in chapter 6.

Laibman further argues that Carling's competitive logic is heavily rooted in capitalism, mainly makes sense within the framework of capitalism, and does not clearly provide a means of escaping capitalism.[99] I will leave the discussion of the transition to socialism for Chapter 5. But it worth noting that it is the case that Carling's theory applies a lot more naturally to Capitalism than to earlier sets of relations of production such as Feudalism. When market competition plays a major role, Carling's theory is very strong. As I've already noted, the market branch of his theory is difficult to fault. However, for most of human history before capitalism international markets played a very peripheral role in human affairs. Very little production, if any, was actually done for the market.[100] Markets rather tended to be a means for people or societies to exchange their surpluses. As such, Carling's theory relies mainly on military competition to establish the primacy of the forces of production before Feudalism.

Similarly, Chibber notes that Carling's theory works very well for the transition from Feudalism to Capitalism, but only because Capitalism is vastly more productive than Feudalism. A similar argument could be made about Carling's other favorite example, the transition from hunter-gatherer societies to agricultural ones. Chibber argues, however, that the advantages conferred by greater developed forces of production would be overwhelmed by other factors in between these two transitions.[101]

Therefore, the main difficulty of Carling's theory lies in explaining human history in between the rise of agriculture and the rise of capitalism.[102] Since this is where the main source of contention lies, I will focus in the following on military competition and not discuss market competition as it is less directly relevant.

[99] Laibman, 2008, pp. 93-94 and p. 97.
[100] Brenner, 1986, pp. 31-32. See also Wood, 2002, pp. 95-97.
[101] Chibber, 2011, pp. 76-77.
[102] I discuss the implications for Carling's theory should it not be able to explain this period in a different paper. Lattanzi-Silveus, 2018, pp. 344-345. There I argue that a decent version of the theory can be salvaged even if no selectionist theory is able to account for the growth of the forces of production during this period.

The first difficulty posed to Carling concerning military competition is one which he himself admits. It is not clear that the development of the forces of production is the decisive factor in military competition. Many other elements can have dramatic effects on military conflict and societies with greater developed forces of production have been defeated in the past. Chibber argues that this at the very least considerably weakens Carling's case. "If there is a law-like relation between the productive forces and the production-relations which governs historical development it has become awfully weak – at best imbuing it, as Carling notes, with a bias rather than a competitive drive."[103]

However, given that what is in question is a quasi-Darwinian mechanism, a bias may be all that is needed to establish the trend that Carling hopes it does. Chibber is correct that there is no guarantee that societies with greater productive forces will succeed in military competition. However, there is no guarantee in Darwinian natural selection, the method that Carling takes as his model, that creatures with greater fitness will survive and reproduce. It is entirely possible that an adaptive mutant might succumb to a physically larger opponent, make a fatal mistake or die prematurely through sheer misfortune. The fact that in competitive primacy it is possible for a society with greater developed forces to succumb to a larger society, to make leadership or tactical errors or to lose a conflict through sheer luck, does not therefore invalidate the theory. It is in fact to be expected in a theory based on a selective mechanism that the entity with the trait being selected for will not always be the one to succeed. The argument rather is that the trait in question, the level of the development of the forces of production in Carling's case, will in all cases give an advantage. And it is this fact which means that it will be selected for, even if only in the long term.[104]

However, a criticism that Chibber dwells on much more briefly has more damning implications for Carling's theory. Chibber notes that Carling does not provide any clear mechanisms

[103] Chibber, 2011, p. 77
[104] For a more detailed version of this argument, see Lattanzi-Silveus, 2018, pp. 346-349.

by which victorious societies could be expected to be able to (let alone desire to) impose their ways of producing on the conquered. Defeating an army is one thing, changing a society is quite another.[105]

Carling could argue that Chibber is overstating the difficulty. Conquering societies can and often do install leaders who are sympathetic to their interests or even members of the conquering society. The ruling class of the conquered generally does not have much power to resist in the immediate aftermath of a conquest and may often be willing to adapt. That said, changing a society is still quite a substantial task, and not always one that conquerors are going to be interested in undertaking. There are strong cultural barriers to the adoption of new practices, and many will find it against their interest to do so. There does not seem to be much other than force in Carling's model compelling people to change and this may well be overpowered by any of the hurdles mentioned above, not to mention the resentment that the conquered are likely to feel towards the conquerors. Therefore, even if new ways of operating could be imposed by force, it is not clear that they would be maintained should the conqueror's grip weaken, or should they be expelled by the local populace or another empire. This is a problem that will need to be dealt with by any theory sympathetic to Carling's competitive primacy, including societal selection.[106]

[105] Chibber, 2011, p. 77.

[106] Carling's competitive primacy is the starting point for societal selection. I see societal selection as an addition to and refinement of Carling's competitive primacy. As such, some readers may be wondering why I opt to call my view societal selection instead of discussing it as an addition to competitive primacy. The reason for this is that I no longer view the phrase competitive primacy as an adequate description of the theory as it needs to be formulated. First of all, while competition still does play a key role in societal selection, it is not the only way such selection occurs. As I will discuss later in the chapter, imitation plays arguably as important, or possibly even more important a role in the selective process. Second, while primacy of the forces of production is maintained, it is not maintained by competition for greater developed forces of production, but rather by competition for greater extra labor. As such, I opted for the phrase societal selection, which I believe describes the process more accurately as it does not imply that only competition is at work, nor does it imply that this competition establishes primacy directly.

# Chapter 2: Societal selection and imitation

## 1) Defining Societal Selection

Societal selection, the view I will present in this chapter and develop throughout the rest of this work, is an attempt to respond to the criticisms of the selectionist view of historical materialism discussed in chapter 1. However, it does so in part by adopting some element of intentionalism and so could be viewed as something of a compromise or reconciliation of the two. As shall be seen below, the main motor force of the development of the forces of production is competition. But this competition almost always requires imitation, a process which usually requires intention to some extent, in order to be able to account for greater development of the forces of production. The core of this chapter will be the discussion of this process of imitation, the first major addition of societal selection. I will begin however with a brief presentation of societal selection.

### *Societal*

The term societal denotes that selection will occur in this analysis between what I will term "societies". Societies are the social groupings between which competition or imitation will occur. The social group governed by a single state, empire, or other political sovereignty may often correspond to a society. But in some analyses a society will be a larger group, such as a group of states (whether they be a part of a political or economic union or not), or a smaller group, such as a

subregion of a state, an intentional community, a corporation, or a cooperative.[107] Whatever the scale, however, the term society is simply meant to denote a social unit participating in the process of societal selection. As such, my goal in this elaboration is to establish what the requirements are for a social grouping to be coherently used as part of a societal selectionist analysis. A society, as I am using the term, denotes a social group which possesses:

- A roughly uniform level of development of the forces of production. The exact level is likely to vary slightly within the unit of analysis, especially if information spread is imperfect or mechanisms restricting the use of information (such as patents) are widely used. Nonetheless, the same basic productive techniques and practices should be accessible across a group in order for it to be considered a society.
- A single set of relations of production. By this I mean a single set of relations that is dominant throughout the society. No set of relations is pure, cases of slavery exist in the modern United States, but this does not change the fact that the United States is capitalist and that many insights can be gleaned by analyzing it as such.[108] However, if on the scale being considered one of the groupings has a different set of relations of production then it cannot be taken to be a society for the purposes of societal selection. For instance, in the pre-Civil War United States a distinction would need to be made in between the capitalist North and the slaver South, since slavery was indeed dominant in the later.

[107] As various authors have noted, the notion of the nation state is a quite modern one, and the salient social units for past societies often differ quite significantly from the nation state. See for example Mann, 1986, pp. xi and 1-3; and Haldon, 1993, p. 5. This expansive definition is mildly supported by a passage from the German Ideology where it is noted that "The relations of different nations among themselves depend upon the extent to which each has developed its productive forces, the division of labor and internal intercourse. This statement is generally recognized. But not only the relation of one nation to others, but also the whole internal structure of the nation itself depends on the stage of development reached by its production and its internal and external intercourse". Marx and Engels, 1975b, p. 32.

[108] See the global slavery index (https://www.globalslaveryindex.org/country/united-states/) for an estimate of the prevalence of modern slavery in the United States.

- A roughly uniform superstructure. Often, especially when considering a state, many elements of the superstructure will be exactly the same.[109] However, it could still be worth analyzing certain international arrangements, such as the European Union, as a unit when comparing superstructures. Even if actual laws may differ in different parts of a "society" they may still accomplish the same, or similar, functions vis-à-vis the forces and relations of production.

The degree of similarity for forces of production and superstructures may vary based on the mechanism that one is trying to illustrate. For instance, an analysis of divergences in development of the forces of production between nations in Europe may group together regions within a nation possessing slightly differing levels of development of the forces of production in order to be able to compare it to another nation.[110] An analysis of differences between regions of this same nation, however, would discriminate more finely between levels of development of the forces or production in order to consider the differences between them. For example, Spain could be analyzed as a whole relative to other nations in Europe, while it could also be useful to analyze Catalonia relative to the rest of Spain.

This flexibility in the degree of similarity means that hard and fast boundaries between societies will be difficult to find. However, despite how variable the scope of a society is based on the type and scale of the analysis being conducted, what I am terming societies all have certain properties in common. They contain some amount of production, a given (if sometimes slightly internally unequal) level of development of the forces of production and a given set of relations of production.

[109] This is not always the case when considering states. Many empires for instance have different laws that apply to imperial territories than what exists in their homeland. Similarly, federations or states which allow any strong degree of decentralization of laws may have significantly different superstructural elements on the more local levels.

[110] This type of grouping is not always possible. For instance, if differences between regions within a nation are greater than differences between that nation and others, then the analysis can only occur by taking these regions to be separate societies.

And, given that they possess a set of relations of production, they all have a consistent class structure (or lack thereof).

*Selection*

The selection process used by this theory, and by selectionist historical materialism, is very heavily influenced by Darwinian natural selection. In natural selection traits are selected for in a competitive *natural* environment due to their fitness enhancing properties, which allow the *creatures* bearing those qualities to have a greater chance of *surviving and reproducing*. In societal selection traits are selected for in a competitive *social and political* environment due to their fitness enhancing properties, which allow the *societies* bearing those qualities to have a greater chance of *surviving and spreading their social and economic practices*. The claim then is that forces of production are fitness enhancing, meaning that a society with greater developed forces will be more likely to endure and spread. The question of how greater development of the forces of production translates into competitiveness will be addressed next chapter. For the moment a few important points need to be raised about how selection operates in societal selection.

The first is that, like natural selection, societal selection -- and selectionist historical materialism more broadly -- is agnostic about how exactly new fitness enhancing traits emerge. It is not important how exactly greater development of the forces of production comes about. It can occur by intention or by happy accident, the point is that once an institution or practice that increases the level of development of the forces of production is adopted it will tend to be selected for and spread.[111]

[111] In this sense it is a "weakly self-maintaining system". See Rosen and Wolff, 1996, pp. 235-236, 239-241. I cannot claim that the forces of production inherently develop, but rather that when greater developed forces emerge, they are more likely to endure and spread. This creates an overall tendency to develop as long as

Another key point about natural selection is that natural selection merely requires is a bias towards selection for fitness enhancing properties. So long as this bias exists species will, given enough time and enough mutations, tend to select for fitness enhancing traits.[112] So too in history. With enough time and enough social changes societies will tend to select for fitness enhancing traits.[113]

However, the great empirical disanalogy between societal and natural selection is that natural selection plays out over millions of years while societal selection occurs in a matter of millennia, centuries or sometimes even decades. A bias is all that is required for the selectionist interpretation of historical materialism to hold in some form, as I noted in chapter 1. Nevertheless, the difference in speed of selection requires explanation. Otherwise, the demonstrated bias would be insufficient to explain the development of the forces of production, possibly to the point of being negligible. Were societies to only abandon traits when defeated militarily then the process of societal selection would take an extraordinarily long time. Societies with competitive advantages do not always defeat their opponents militarily and economically, they are only more likely to defeat them. This entails that very many conflicts will need to occur before the tendency for the bias to assert itself. Additionally, defeated societies will not always change the forces of production they use after being conquered. As such, the process, if limited to competition, appears to entail much slower progress than occurred in human history.

Even more troublingly, in addition to being slow, the mechanism of selection described above is in demonstrable conflict with human history. Forces and relations do not only spread though military and economic defeat. Very often societies adopt the practices of others without

greater forces could emerge somewhere in the world. So long as this is a possibility, given enough time this greater level should come about, endure and spread leading to a more generalized increase in the forces of production.

[112] Darwin, 1907, p. 421.

[113] In the *Dialectics of Nature*, Engels does note that dialectics most often wait for a long time for scientific discovery to occur. Marx and Engels, 1987b, p. 399.

having been at war with them.[114] Conquest is not, historically, the only way in which societies adopt the practices of others. This is not to say that the selectionist model is incorrect, but rather that it is insufficient to account for human history on its own.

Furthermore, without any addition, selectionist historical materialism faces the problem posed at the conclusion of chapter 1. There is a major theoretical disanalogy between selectionist historical materialism and natural selection. Carling argues that conquest plays the role not of eliminating competitors but rather of directly spreading greater developed forces of production. As Vivek Chibber notes however this leaves open the problem of how conquest translates into to this spread of forces of production.[115] What entails that societies will adopt (or at least tend to adopt) the practices of their conquerors? At the end of Chapter 1 I noted some reasons to think that there might be such a tendency but that those reasons are not enough to decisively show it.

There are therefore three major problems for selectionist historical materialism stemming from three major disanalogies between this view and natural selection that have not been adequately accounted for. Empirically, selectionist historical materialism seems unable to explain adequately both: 1) the speed of social change; and 2) the fact that much of social change occurs without conquest or defeat. And theoretically it does not adequately explain how: 3) the spread of traits via conquest functions (a mechanism with no equivalent in natural selection). Societal selection proposes that these disanalogies exist because of the phenomenon of imitation and can therefore be addressed by developing an analysis of this phenomenon.

[114] Conquest was not required, for instance, in order for bronze or iron-making to spread in the ancient world. McNeil, 1982, pp. 12-13. Egypt, for instance, was not the originator of bronze or iron and did not require foreign conquest to eventually adopt them. Hodges, 1970, pp. 80 and 124. Additionally, examples such as the Meiji restauration evidence conscious imitation of different relations of production without being conquered. Akamatsu, 1968, pp. 294-295.
[115] Chibber, 2011, p. 77.

## 2) Imitation and Competition

Societal imitation is the process of a society adopting practices identical or similar to those of another by virtue of the fact that this other already has these, or similar, practices.[116] This could be the result of a conscious policy, an adoption of given practices within a society for ulterior motives, or may even be entirely unintentional. The main task of this section will be to discuss when imitation applies and to begin to show why imitation should lead us to believe that greater developed forces of production will tend to spread. Success in doing so would add another mechanism to the historical materialist repertoire. Direct conquest would then not always be necessary for the spread of forces or relations of production.

The basic principle of imitation in societal selection is that societies will tend to imitate other societies with greater developed forces of production. Whatever their goals might be, societies will tend to imitate those societies which they perceive to have succeeded in these goals. As such, they will tend to adopt something resembling the practices and institutions which they believe are the cause of whatever success they may wish to replicate. Sometimes they will be mistaken in their

[116] I will discuss some of the literature on the diffusion of innovations in this thesis, but readers familiar with this field may be surprised at how much I leave out (I mainly draw from the work of Everett Rogers for some examples). These omissions are due to the fact that not all of this literature is helpful in the general discussion of imitation. Much of it concerns the actual process of adoption of innovations, often the factors in specific instances which aided or slowed innovation adoption, which has few immediate consequences for the more generalized process of societal selection. While a greater examination of the adoption of innovations might be useful in a more detailed examination of this aspect of societal selection, all that is required for societal selection is that such imitation occurs at all. Even the literature on the ways in which the attributes of an innovation influence its adoption is mostly not directly relevant here. In later chapters I make use of the claim that the greater the relative advantage of an innovation, the more easily and rapidly it tends to be adopted. However outside of this claim, the other attributes of innovations that influence its rate of adoption of innovations (compatibility with already existing practices, complexity, trialability, and observability) are dependent on the social situation in which they are being introduced. Furthermore, even if this were not the case, they would at best entail that some innovations which develop the forces of production would spread more easily than others, but not have significant consequences for the spread of such innovations as a whole. For some overviews of this literature see Seely, 2003; Rogers and Adhikarya, 2017. Wejnert, 2002, provides a good overview of some of the important concepts at play in the diffusion of innovations.
I tend to favor the term societal imitation over diffusion of innovations because the former is less awkward when discussing imitation or diffusion as a process that is occurring between societies.

imitations. But often they will either in their first or later attempts, adopt practices that allow them to advance their ability to achieve their goals. And since these goals, I will argue, are better achieved with greater developed forces these more developed forces will be a part of any successful imitation. This can consist in direct imitation of forces of production, superstructures, or (perhaps more rarely) relations of production that foster the further development of the forces of production. Both this chapter and the next will be devoted to unpacking this process, and defending its various steps, but this is the broad outline of the process of imitation.[117] For the duration of this chapter, I will be assuming that societies with greater developed forces of production will tend to succeed in ways that will inspire imitation more often than those with less developed forces. I will only defend this assumption next chapter, when I discuss extra labor.

Imitation taken in this way is an intermediary or perhaps even a reconciliation between intenionalist and selectionist historical materialism. Indeed, as noted in chapter 1, Laibman discusses what is effectively imitation to respond the problem that individual societies may find themselves stagnating. However, Laibman lacks a means to show that such imitation will tend to favor the practices of societies which have greater development of the forces of production. Societal selection on the other hand does have such a means. By conceiving of imitation in a selectionist way, in taking imitation as a means by which traits can spread and then be selected for, it is possible to provide an account of why imitation will tend to result in the spread of practices of societies with greater developed forces of production. Societies that imitate, and that retain imitations which develop the forces of production, will tend to have greater developed forces that they can marshal for economic and military competition. Furthermore, as I will argue over the course of this chapter and the next, societies with greater developed forces will be more likely to be the subjects of imitation as they will

[117] The view of societal imitation has a precedent in Trotsky's theory of uneven and combined development. Trotsky, 2008, pp. 24-25. Trotsky uses the term "assimilation" to describe nearly the same process as what I term societal imitation. And similarly to Trotsky's assimilation, imitation is often imperfect, involves (for better or worse) modifications by the imitators, allows imitators to speed up or skip lengthy processes of development, and is compelled upon "backwards" societies by the demands of international competition.

be able to harness the more resources to succeed in the practices that will inspire imitation than their competitors will.

Some imitation arises directly from military or economic competition itself. Military or economic success can provide a dramatic and difficult to deny illustration of the success of another society. As Aristotle put it "anything that conquers always does so because of *some* good quality".[118] Conquest provides evidence that there is at least something worth imitating in a society. This imitation becomes even more urgent when it is carried out not merely to emulate the success of another, but also to stave off defeat at the hands of another. A society that views itself as being under threat by another may adopt some of the latter's practices to stave off economic or military ruin. Corporations may imitate foreign practices to remain competitive with foreign corporations and thereby preserve their market share. Nations may imitate the practices of neighboring powers who are perceived as a threat. The perceived threat of being defeated itself is often enough to cause others to change their practices.[119] Societies need not actually conquer others, therefore, in order for these others to adopt similar practices. The perceived threat of them doing so is often enough cause neighbors to imitate them out of fear of falling behind.

Additionally, imitation can arise in reaction to conquest and help explain how conquest might tend to lead to the conquered adopting the practices of those that conquered them. Being conquered is a dramatic sign that the conquering society was able to best the conquered one in at least one (rather important) realm. As such, the conquered may decide that they might benefit by learning from their defeat and trying to adopt the practices that they may recognize as having

[118] Aristotle, 1998, p. 10.

[119] Peter the Great for instance is generally acknowledged to have undertaken his reforms, in large part, in order to try to bring Russia on par with Western Europe militarily. Hughes, 1998, p. 76. Similarly, one of the main motivations of the Meiji's imitation of some elements of Western society was fear of encroachment by foreign powers. The dramatic success of the British in the Opium Wars and the arrival of advanced American warships under admiral Perry and the subsequent arrival of warships from various other European countries were all cited at evidence for the need to learn from the West and modernize. Akamatsu, 1968, pp. 108-110, 119-120, 129.

allowed for the superiority of the conquering society, or may just associate with the conquering society.

Finally, a society can be forced to imitate the practices of their conquerors. This is likely what Carling has in mind when it comes to spreading the forces of production via conquest. This is still imitation, the conquered are simply forced to imitate. This force may take the form of direct coercion, but it may also take less direct forms, such as ensuring that only those who adopt certain practices will be allowed to achieve social, economic, or political success. Conquerors will not always be able to do this. Sometimes they will be limited in the coercion they are capable of or willing to enact. However, it's likely that they will be able to impose their practices at least to some extent should they desire to do so. If nothing else the conquering society should be able to insert its own people into the ruling class or even replace the local ruling class entirely. It should also in most cases be able to change the rules, structures, or incentives present in the conquered society. However, the conquering society will require some participation from the conquered for this to be consistently achieved. The conquered must submit to these new rules, and in cases where the occupation eventually ends, they need to decide to keep the practices of the conquered instead of reverting to their old practices. As such, even the process by which military competition directly causes the spread of forces or relations of production requires some form of imitation. This suggests that imitation fits very naturally into the selectionist framework and indeed Carling is sympathetic to the idea.[120]

It is worth noting that there are some cases in which the local society's activity is irrelevant. These are cases in which the less competitive societies are displaced, wiped out or rendered a minority that is forced to integrate into the conquering society. Almost all the indigenous peoples of the Americas suffered at least one of these fates. Since these scenarios do not consist in a society adopting the practices of another, there is no point in trying to assess the extent to which the

[120] Alan Carling, personal communication, July 13th 2016.

conquered might take on practices of the conquerors. The practices spread by virtue of the people of the conquering society spreading at the expense of the conquered. The ethnic cleansing involved in this process is abhorrent, and often forecloses on valuable opportunities for the conquerors to learn from the conquered. But it is also a powerful, and unfortunately historically common, means by which societies spread their practices. By virtue of the fact that the local population is in one way or another rendered irrelevant to the dominant practices in the territory that once held their society, this is the one instance in which military competition does not require imitation in order to spread the practices of the conquerors.

Military and economic success are the most likely kinds of success to form the basis of imitation. They are high stakes realms, since defeat in military or economic competition is often a threat to the independence or very existence of a society. Furthermore, military and economic might are often illustrated in quite dramatic fashions, especially when manifested by victory over others.[121] Imitation need not however be motivated only by a desire to emulate military or economic success. In principle at least, success in any domain considered valuable can be the subject of imitation. As such, higher standards of living, greater technological development, achievements in culture or philosophy, to name just a few, could form the basis for imitation.

## 3) Typology of Imitation

To defend imitation as a salient force in historical materialism I need to be clear about what kinds of imitation might occur between societies, and which forms of such imitation will play an important role in historical materialism. The following typology distinguishes the types of imitation

[121] The need to prioritize military competition is likely part of the explanation for the fact that, as Marx notes, many technological developments are first used in the military before being adopted by civil society, Marx and Engels, 1987c, p. 45.

that exist in order to gain a greater understanding of how imitation functions, how it relates to the forces of production, and what kinds of activity fall under the category of imitation. Forms of imitation will be categorized in two ways: the level of intentionality involved and how the element being imitated relates to the forces of production (or to stability-granting superstructures which, as will be noted later in this chapter, also play an important role in this analysis). The categorization, to be developed throughout this section, can be represented by the following table:

| | | | Form of Imitation | | | |
|---|---|---|---|---|---|---|
| | | | Intentional | | Unintentional | |
| | | | Unforced | Forced | Unforced | Forced |
| Object of Imitation | Partial | Symbolic | | | | |
| | | Technical | | | | |
| | | Productive | | | | |
| | General | | | | | |

*Forms of Imitation*

The form imitation is highly important for the analysis of agency in the process of imitation. There are two criteria which need to be considered with regards to this, the first is whether or not the imitation is intentional or unintentional, and the second is whether the imitation is forced or unforced. In other words, how intentional, and how voluntary is imitation in various contexts?

*a) Intentionality of Imitation*

Intentional imitation is what is generally thought of as imitation. It is when someone or some group consciously decides to imitate another in some way. In societal selection this will be when a practice is intentionally adopted by a class or ruler with the power to spread that practice throughout the society. How successful or how complete their attempt to cause their society to

adopt a given set of practices will vary case by case. But so long as they are at least partially successful one can say that imitation has occurred.

Typically, intentional imitation will be undertaken by classes in their own interest or by rulers advancing the interests of a particular class. In periods when relations of production are not being challenged imitation may be undertaken by subordinate classes, but it will most commonly be a project of at least a portion of the ruling class. Ruling classes are usually the ones with the means to put in practice different ways of doing things, as they can fund, support, enact and/or mold artistic movements, scientific projects, governmental policies and other possible loci of imitation. They will be in an especially privileged spot to implement changes in production methods, as they will either control the means of production or, in the case of some relations of production, control the owner of the means of production. Furthermore, ruling classes will tend to have an interest in imitating practices which are considered superior. They will typically be interested in increased production, as this means increased surplus production for them. And sections of ruling classes at least will also usually be interested in such things as art, tactics, knowledge, luxury goods, or more efficient systems of government which might exist abroad, either inherently or as a point of national pride and status. Failure to keep up, on the other hand, can result in being replaced by foreign rulers through conquest, a weakening of their position, prestige, and/or coercive ability. This can lead to other classes threatening their power, or at the very least causing them some form of distress through unrest. This is not to say that the ruling class will always act in the best interest of a society, and it is certainly not to say that they act in the best interest of the members of other classes which compose their society. But they do have an interest in doing well competitively (be it in military or economic competition, or competition to excel in some other domain perceived as valuable) and so will tend to imitate (or perhaps innovate) when it allows them to do so.

However, the ruling class may cease to imitate others when such imitation might threaten their class power. The main situation in which this is likely to be the case is when a set of relations of

production is fettering the development of the forces of production and a new set of relations is emerging. A feudal ruling class may, and likely will, imitate some of the practices of a capitalist society (at their own peril) to remain somewhat competitive, but they cannot retain their position if they fully imitate it. However, in this situation there is another class that may be doing the more important imitating: The emergent ruling class.[122] This emergent ruling class likely finds opportunities in the stagnation of the relations of production they find themselves in. They may also be able to take advantage of changes or imitations that the old ruling class makes which unwittingly empower the upstart class, giving the latter the means of having some influence in society and to begin to put in practice relations of production that put them in power. The emergent ruling class can fully advocate for a system similar to the new set of relations of production and has a strong interest in doing so. It can use its more successful neighbor as a guide to the measures that might bring about their rise. This neighbor also provides them with an implicit, and possibly explicit, argument for their rise to power, allowing them to find allies in other classes.[123]

Unintentional imitation, on the other hand, is when a practice is imitated without the conscious intent of any actors. In interpersonal relationships the idea is easy enough to grasp. I might imitate someone's mannerisms, attire, or personality without consciously intending to do so. In relation to society, it is more complicated, as important social changes often require concerted effort to bring about. People in a society may adopt styles or attire from other civilizations without

[122] Indeed, the fact that it is the emergent ruling class which imitates changes when they entail new relations is important to respond to the criticism which Chibber raises for imitation of relations of production. Chibber 2011, p. 77. Indeed, a ruling class operating in one set of relations is not likely to try to change those relations. They may be able to retain their position of power in the new relations if they support the emergence of these relations, but they may just as easily lose it in the change in relations. As such, while they may jump on the bandwagon of change to hold on to power, they are unlikely to be the prime force initiating such change, and so will be uninterested in imitating others unless this imitation is already occurring without them. But the emergent ruling class has every interest in imitating new relations which bring them into power. Of course, just like the old ruling class, they may fail, or they may imitate the wrong aspects of a society. But this failure is temporary and localized. The emerging ruling class can try again in the future, and the same class in other societies will also be able to try. So long as any of these attempts succeed imitation will occur and allow new relations, or the forces of production underpinning them, to spread.

[123] This last argument is similar to elements of Cohen's intentionalist argument for the transition between relations of production. Cohen, 1978, p. 292.

realizing it, but for something more impactful generally one expects someone or some group or class that has an interest in the imitation to play an active and intentional role in causing a society to imitate. As such, it is possible to argue that unintentional imitation does not play a meaningful role in historical materialism. However, since it is a possibility that it could play a meaningful role, and in the absence of a decisive argument to the contrary, it is worth maintaining as a category.

Part of the issue in determining the impact of unintentional imitation is that it is the most difficult form of imitation to identify in history. Intentional imitation can usually be identified when an individual states, either on behalf of themselves or a group, that they would like to adopt practices that are the same as or similar to those of another. It can also be imputed a significant portion of the time when groups of people adopt a more efficient set of practices held by neighbors. Intentional imitation can be shown by historical records wherein the desire to imitate is plainly stated. Unintentional imitation, however, is by its very nature difficult to identify. Since no one is intentionally acting it must be imputed from other historical evidence. And even then, it is possible that the imitation was in fact intentional but that we do not have the records to show us this.

*b) Force and Imitation*

Discussing force in imitation may seem a little odd. Usually when imitation comes to mind it is something undertaken by a group or individual without external coercion. Agents imitate because they want to, because it is in their own interest, or unintentionally due to admiration or awe. In all of these cases imitation is initiated by the imitators themselves. However, especially when considering societies, it will be important to consider cases when imitation is forced on one society by another. Forced imitation is when an external party, generally a conquering one, imposes changes by force. This kind of imitation, as mentioned above, is very important for the role of conquest in the development of the forces of production.

Societies are not unified in opinion, and as such, there will virtually always be members of a society who support the changes being forced upon them by their conquerors. However, the support of some members of society for a change does not make it any less forced. Additionally, societies influence each other and pressure each other all the time. But if a society adopts a social change that another society happened to be pressuring them to adopt, this does not necessarily mean that this adoption was forced. After all, this pressure may have been entirely irrelevant to the decision. The existence of some internal support for a change, or of some external attempt to force change is not what determines whether or not an action was forced. Rather, such determination requires a counterfactual analysis. Would the change have occurred within a similar timeframe without the pressure or force exerted by an external power? Only if they answer is no can we classify the change as forced.

Most forced imitation will likely be intentional. The kinds of force one generally thinks of in this context are easily recognized, such as the use of military and police force or replacement of governing bodies with those willing to carry out the wishes of the conqueror. In this case, the conquered will be well aware that change is occurring, and those involved in changing the society will be acting intentionally (if not always voluntarily) since they too will be aware of what they are doing. However, it is entirely possible for forced imitation to be unintentional as well. For instance, the practices and expectations of the conquerors may constrain, incentivize, persuade, or manipulate the conquered to act in a certain way without the conquered realizing it. How unintentional this is will be dependent on how aware the conquered are of the ways that these institutions are influencing them. But one could imagine changes in the goods being consumed, in what a religion encourages, or even the structures of cities and buildings having effects on the conquered that they do not fully realize.[124] Alternately, the conquered may be nudged away from

[124] And indeed, the conquerors themselves may be unaware of this effect. They may simply be reproducing the consumption patterns, religious moral principles, or urban structures that they are used to without necessarily intending to change the conquered.

their own previous practices simply by virtue of the fact that conquerors will be less likely to grant them positions of power and influence if they hold on to those practices. This entails that those who are powerful in the conquered society and possibly, therefore, those the society looks up to, may come to have different practices. As such those seeking subconsciously to emulate this success may begin to adopt and valorize such practices as well.

Of course, much of this will be dependent on how the conquered react to the conquest. They may just as easily despise what is valued by the conquerors by virtue of the fact that the conquerors value it. However, if the conquest lasts long enough, and assimilation is open as a possibility, there is an increased likelihood as time goes on that greater and greater portions of the population assimilate and adopt the practices of the conquered, as the conquest itself becomes a more distant memory.[125]

Additionally, it is debatable how important such unintentional forced imitation really is. Similarly to unforced unintentional imitation, finding evidence that the conquered are unaware of the effects that the institutions, practices and expectations of the conquerors are having on them is very difficult. Such effects are certainly less dramatic than easily recognizable applications of force. But their effects may be more long-lasting and may play an important role in enabling conquest to bring about imitation in the first place. Whatever the case, what I have presented above are formal options, historical analysis will be required to show how important each is in the course of history.

[125] Assimilation may not always be a possibility for the conquered, depending on the goals of the conquerors. In situations where apartheid is enforced, or where conquerors are more interested in controlling the land than the people on it, such assimilation may not be possible at all. In other cases, it may not be possible to fully assimilate, if the conquerors are able and willing to use elements such as racial difference to ensure that the conquerors are only integrated on a partial or second-class basis.

*Object of Imitation*

The object of imitation can be either a specific element of a society, or a general attempt to imitate a society more broadly. Since my focus is the forces of production, I will focus on determining the relation of each to the development of the forces of production. I shall consider general imitation in this regard later. Partial imitation however can be related to varying degrees to the forces of production depending on the type of partial imitation in question.

*a) Partial imitation*

The first type of partial imitation is emulation of surface or symbolic elements. As such I will call it symbolic imitation. Much of the imitation of the past falls in this category. The Greeks and Romans were, and still are, the focus of a lot of imitation in the western world for instance. More broadly, past empires are often the subject of nostalgia and reverence. Symbols of past empires, as well as architectural styles, artistic styles and the like can often be imitated to take advantage of the symbolic power of these empires. The kinds of elements that are imitated, however, mean that this form of imitation does not play much of a role in societal selection. What is being imitated is not content, but form. These imitations serve different purposes entirely. Often, they are meant to evoke symbolically the power and stability these empires currently have, or had in their heyday. Other times they indicate an importance placed on certain institutions or values held by these empires. Importantly in the latter case, this is not an attempt to imitate the empires in question wholesale, but rather to legitimate certain values and institutions already held by claiming that they are drawn from the empire in question. Medieval or later imitations of the Roman Empire have rarely, if ever, seriously considered returning to slavery and latifundias.[126] This use of imitation is

[126] As a non-Eurocentric example, the city and art styles of the Mesoamerican city of Teotihuacan also played a similar role in relation to the ancient Maya. Long after any power they might have had over the Maya waned,

therefore largely symbolic, meant to evoke power and thus serve an ideological role. As such, this form of imitation has very little relevance for the development of the forces of production.[127]

The second form of partial imitation is the imitation of techniques, practices, or use of non-productive objects in a specific domain without directly benefiting the forces of production. I will call this technical imitation. This is the case if one society tries to imitate another's artistic techniques, military tactics, or weapons, for instance.[128] Importantly, as the name suggests, what distinguishes this form of imitation from symbolic imitation is that this involves the imitation of technique, not style. Imitation of Roman architecture does not involve learning new techniques whereas early renaissance artists imitating the use of perspective by other artists does. Technical imitation becomes consequential for historical materialism when it entails the adoption of certain forces or relations of production that can be used for other purposes. Imitation of certain sculpting might entail learning stone carving techniques that may have other economic applications and thus serve to develop the forces of production. The use of new weapons may entail retooling of domestic weapon production to produce said weapons (assuming they aren't simply traded for) and may require changes in productive techniques that could have far reaching implications for the forces of

Maya lords would use Teotihuacan symbolism to assert their claim to authority. Stuart, 2000, p. 506. There are of course countless other examples of such imitation, nearly every society has some once powerful empire it harkens back to, but many of these examples are made more complex by the fact that some of the "imitation" could be seen to be simple continuation of artistic and stylistic practices instead of adoption. Additionally, in some cases, such as the modern Egyptian use of symbolism derived from Pharaonic Egypt, such imitation can sometimes serve other political roles (in this case, distinguishing Egypt from the rest of the Arab world). Imitations of symbolic elements of contemporary powerful societies is more complicated. This is because it is often tied up in more general attempts to imitate the society and its success, as opposed to merely attempting to symbolically evoke that society in order to identify ones' own society with power or stability. Therefore, such examples are less clear cut, and probably rarer, but they may still exist.

[127] Although this ideological role is relevant to extra labor, as discussed in chapter 3. Such symbolism may allow for a reduction in the cost of stability.

[128] Weapons, while used in war, and capable of making war more efficient, are not a force of production as they are not used in a productive process. I use weapons as an example of how the desire to use an object may or may not affect the development of the forces of production because it is clear why there might be a strong and compelling reason to want to imitate them without this coming from a desire to develop the forces of production. However, it is far from the only sort of non-productive object the use of which can be imitated by others. New consumption goods, for instance, could be adopted because a society sees another enjoying them and desires them for themselves. Most of what is said below about weapons could also apply to consumption goods.

production. Furthermore the weapons themselves may be tied in with certain types of knowledge.[129] However, it is entirely possible that new techniques will not yield principles that would be applicable to increasing productivity. For example, the introduction of perspective in Renaissance painting does not appear, at least at first glance, to contribute to the development of the forces of production. This kind of imitation, therefore, will sometimes secondarily entail development of the forces of production. It is worth noting that it has this effect even if the society which is imitated may not have greater developed forces overall. A society which is otherwise more productive may gain even greater productivity through the knowledge gained by imitating the stone carving techniques of a less productive but more artistically proficient neighbor. Even if the techniques entail an earlier mode of production, such as an artistic return to hand crafting in an era of mass production, it cannot realistically reduce the development of the forces of production, since knowledge of mass production is not thereby destroyed. Even if a producer were misguidedly to adopt hand crafting in response to this trend it would become apparent very quickly that it is a significantly and quantifiably less efficient way of producing, leading them very likely to return to mass production, or at the very least heavily discouraging others from following their example.

This second form of partial imitation likely plays a significant role in the development of the forces of production, and it has the added advantage of not relying on anyone having any intention or interest in developing the forces of production. Therefore, it can still occur even if no major class has an interest in the development of the forces of production as such, or if no individuals act with the intention of developing them. Neither the feudal lords nor the feudal peasantry need to be interested in the development of the forces of production for the lords to wish to adopt crossbows and thereby advance their knowledge of mechanics in ways that could potentially be used for production.

[129] For instance, the chariot requires the development of the bridle and bit, as well as redesigns of the chassis and wheels, all of which have productive uses. Hodges, 1970, pp. 115-117.

The third form of partial imitation is productive imitation, when methods of production are directly imitated. Unsurprisingly, this has the most direct effect on the forces of production. Generally, this will be done for ulterior motives (with the exception of capitalism, where the pursuit of profit is often the driving force). Ruling classes will likely desire greater surplus extraction, which they can then put towards greater military strength, the acquisition of luxury goods, or whatever they happen to be interested in achieving. Subordinate classes may desire greater wealth and economic security, or the possibility of elevating their class status or social status.[130] This phenomenon is most radically shown in the imitation of productive practices in capitalism, where capitalist competition provides a powerful incentive to keep up with competitors and imitate any successful techniques and practices they come up with. But it is not limited to capitalism. There are also many examples of such imitation in pre-capitalist societies.[131] While Brenner may be correct that pre-capitalist society often does not incentivize or make easy new developments of the forces

[130] As I have discussed at length already, Brenner argues that neither exploiters nor direct producers would find it rational to develop the forces of production. Direct producers were more concerned with self-sufficiency and could not expect to keep the fruits of greater developed forces. And exploiters did not have enough labor discipline or control over the productive process to introduce new forces into the productive process in a way where they may reasonably expect the benefit to be worth the cost. However, unlike Cohen, societal selection does not assume that the motivation for greater developed forces of production is rational. A farmer may develop a more effective means of agriculture for the sake of it, or out of misplaced faith that their exploiter will allow them to keep the fruits of this more effective means of production. Exploiters may be willing to introduce and enforce new methods even if they are more expensive to implement than they are worth, (which may not always be the case, depending on how radical a shift is being considered). Especially in agriculture, these developments will be limited both by the factors mentioned above and by the constraints of pre-capitalist relations of production. From a capitalist standpoint this development may appear very slow and limited. But it was nonetheless still occurring, especially outside of agriculture. And then, once a new force of production comes about, it will have a tendency to be imitated more often than not. Once exploiters and producers somewhere work out a means of producing more efficiently it becomes a lot easier to adopt these new methods and a lot clearer how they might be adopted. Constraints in information storage and sharing will limit this imitation somewhat. I expect many productive innovations occurred in pre-capitalist periods that were never recorded and died with their inventors. But while limited, such imitation could still occur. And the more widely an innovation is imitated, the more visible it is to others and so the more likely it is to be imitated again.

[131] I have already mentioned for instance that bronze and iron working did not spread through conquest alone it is reasonable to assume they spread at least in part through imitation, facilitated by the contact which trade encourages. Hodges, 1970, p. 123-124; and McNeil, 1982, pp. 12-13. Wickham notes a similar spread of innovations in the Middle Ages. Wickham, 2008, pp. 15-18. In another example that I find particularly illustrative, Egyptian faience, a means of creating synthetic lapis lazuli, appears to have spread first via trade before being replicated by local producers. Even the Egyptians, who the practice is named after, imitated this practice from elsewhere and only produced it in the large quantities that tied their name to the practice a few thousand years after its actual invention. Hodges, 1970, p. 57.

of production, once such forces are adopted by competitors (for whatever reason) it may become difficult for a society to remain militarily competitive with these competitors unless it adopts these new forces as well.

*b) General imitation*

Where partial imitation is the imitation of a specific practice, general imitation is the attempt to imitate a society more broadly. It may consist of multiple partial imitations, but what distinguishes general imitation is that it is intended to emulate a society as a whole. This will generally be due to the society being seen as generally more successful than one's own. This other society's success will manifest itself as success in one or more domains and entails an attempt to emulate the aspects of a society that are seen, rightly or wrongly, as responsible for their success. It is reasonable to assume that people will usually tend to include the causes of the success they wish to emulate in the practices they imitate. However, the existence of this tendency is not crucial to the argument. Both correct and incorrect imitation will tend in the same direction.

On the one hand, if the correct factors are imitated, then the society in question should experience at least some measure of the success of those they imitate, unless of course structural factors are such that the imitator could not follow the same path as the society being imitated. In the latter case, societies should, and usually will, imitate those societies which have been able to find success starting from a similar situation as them.[132]

On the other hand, if the incorrect elements are imitated this could lead to three possible results. The first is that the imitators realize that they have not imitated the correct elements, and therefore make another try. The second is that the imitators fail to achieve the success they hoped

[132] This is arguably one of the reasons the Soviet model was so attractive throughout the third world during the Cold War. In the span of a few decades, it transformed one of the less developed nations in Europe into a superpower well after the early industrializations that permitted the development of Western Europe.

for and decrease in power and importance until they are either sidelined or in some way forced to adopt the mode of production of a more advanced society, through conquest, pressure or otherwise. And the third is that the imitators may, either through their imitation or not, develop some other means of remaining competitive, thereby providing a new model, or a new aspect, to emulate.

General imitation does not necessarily mean desiring to be exactly like the society to be imitated, but rather it involves recognizing them as worth imitating as a whole. One might wish to be "like Western Europe" without necessarily becoming exactly like them. Peter the Great's attempts to remodel much of Russian society on Western European lines involves attempting to combine foreign and local policies.[133] These sorts of provisions, enable some amount of tailoring to local context and may allow for interesting innovations of their own, which might be themselves worthy of imitation. Petrine modernization for example could be considered a precursor in some ways to many state-directed forms of capitalism.

## 4) Barriers to Imitation

Imitation is not always a smooth process. There are many factors which pose barriers to innovation. These factors include the social structure of the imitators, their norms, their perceptions of those they are imitating, network externalities of already existing technologies or practices, vested interests of those in power in old technologies or practices, to name a few.[134] When the "imitation" consists of a society being forced to adopt the practices of another, then the ability of those being forced to change their practices to resist such a change, or to revert back to old

[133] For instance, while many industries were created or developed under Peter, some of them were state run and the state had a heavy hand in the economy. Hughes, 1998, pp. and 155-156.
[134] For some examples and discussion of some of these barriers see Rogers, 2003, pp. 18-21, 24-25, 36-39.

practices, should also be considered a barrier to imitation (or at least to the endurance of the adoption of an imitation). These barriers can slow the imitation and adoption of new practices even if the practices do provide a competitive advantage.

In cases where these barriers merely slow the process of imitation, this does not prevent it from playing the role in the development of the forces of production described above. These barriers are factors which would need to be considered when determining the speed of imitation, but they do not prevent imitation from occurring. Imitation can still be a vector for the spread of more developed forces of production, it is simply a vector which is slowed by various barriers. Indeed, a historically accurate account of imitation must include the expectation that imitation will not be instantaneous, or near instantaneous, in most historical situations because at least some of these barriers are likely to exist for any imitation.[135]

However, sometimes, barriers to imitation may prevent the process of imitation entirely. An innovation may completely fail to be adopted, and attempts to introduce an innovation may cease, due to a failure to surmount barriers. In most cases, later attempts to adopt this innovation will eventually succeed, perhaps of the same innovation, or one that is similar. This may occur for a variety of reasons, including societal change among the imitators, increased relative efficiency of the innovation, more amenable ruling classes, or even sheer luck. However, in some societies some or multiple innovations may persistently be prevented from spreading to specific societies due to such barriers. In some of these cases, the refusal to adopt an innovation might lead to their eventual forced adoption of that innovation, as they fall behind their competitors who eventually conquer them, economically outcompete them, or otherwise compel them to adopt these new practices in spite of resistance. Alternately, the non-adoption of certain innovations may result in the integration of the non-imitator into a peripheral position in an economic system centered around those who

[135] As Rogers notes, there will always be at least some amount of heterophily between imitators and imitated, which can form the basis of some resistance to the adoption of new innovations. Rogers, 2003, p. 33.

adopted the innovation.[136] In this case, adoption of the innovation may not occur, but the society would still be integrated into an economic system in which the innovation takes a prominent place. A nineteenth century European power might not grant heavy machinery to its colonies, but it would extract resources from those colonies to be used as raw materials for production using heavy machinery in Europe. Alternately, societies which did not adopt agriculture, usually due to poor geographic conditions for crop production, often became economically dependent on agricultural

[136] The terminology is similar to and broadly inspired by dependency theory, but since I am attempting to use it to encompass pre-capitalism as well, my definition is slightly broader. In particular, especially in pre-capitalism, there will often be multiple cores, as communication and trade across the geographical distance that separates these cores is limited. A peripheral society is one which is in some way structurally dependent on a core society. Raiding peoples' relationship with agricultural states, for instance, provides a good example of this. Societies dependent on raiding as a source of sustenance were dependent on the agricultural states. As such, while they could often defeat agricultural societies militarily, usually due to advantages in mobility, they could not destroy these societies without destroying their own way of life. Therefore, the only ways they were able to sustain themselves long term was to develop some sort of long-term relationship with the states governing agricultural societies. The simplest of these might simply be to continue raiding, but not in sufficient quantities to destroy the societies they are raiding. However, many of these consisted in entering into something closer to an agreement with the society they were once raiding. These relationships often involved tribute, possibly being hired as mercenaries by the state, or trade in objects the state had difficulty acquiring. In some cases, the situation would be resolved by raiders supplanting the state and becoming the governors of an essentially unchanged agricultural society, in which case they moved from being peripheral to being integrated into the agricultural society and their relations of production. See Scott, 2017, pp. 250-252, on raiders' relation to agricultural societies. Some illustrative examples of this final tactic include the Hyksos conquest of Egypt, or Kublai Khan's conquest of China and its subsequent governance by Kublai and his heirs in the Yuan dynasty. Scott, 2017, p. 250. These examples illustrate how, even when the society which has not adopted the more productive relations of production might have a strong military advantage, they are eventually subsumed into the new relations, either in a dependent relationship or as new leaders of these relations. In short, these societies were dependent upon the core they were raiding, extracting tribute from, being paid off by, hired by, or ruling. Without that society they could not perform these activities. As such, they were a peripheral part of a set of relations built around the relations of production of the core (this would also be my response to Graeber and Wengrow's contention that "capturing societies" undermine the very notion of modes of production. Graeber and Wengrow, 2021, pp. 186-190).

Of course, situations of structural dependency will often not be the result of military advantage on the part of the dependent society. Societies might be in dependent relationships where they are made a protectorate of and/or forced to pay tribute to the society with greater developed forces of production (though, unlike in the case of raiders, this tribute is simply a supplement to the agricultural base and is an alternative to conquest and transformation into an agricultural society, or outright elimination). How exactly these relationships play out will be different depending on the relations of production in question.

There is of course a third relationship that a society can have with a new set of relations of production, which is more or less not to have one. This will be the case when there is no vehicle for competition between these societies due to geographic distance or barriers (perhaps because they are separated by peripheral societies) that may prevent the society with new relations of production from extending its political reach to another society. Alternatively, the society possessing the new relations of production may not be interested in control over the region occupied by the other society (perhaps due to harsh environmental conditions). In these cases, which I dub "external societies", there may be some trade, or possibly no relationship at all. However, as the political reach of societies increases, and as the number of societies possessing the new relations of production increases, such cases will tend to diminish. And with the advent of capitalism, they have virtually disappeared from the modern world.

societies, when they were not wiped out entirely. Counterintuitively, this dependence often consisted in the peripheral society raiding the agricultural center, thereby making it dependent on continued agricultural production for its own sustenance. Finally, some societies may resist both certain innovations and significant integration into the economic system of the core.[137] However, such a strategy should only be expected where resources are scarce enough, or geographical barriers are high enough for the core not to take much interest in this society. Any society which does not fit these criteria would become caught up in the military and economic competition which compels societies to imitate each other, and at the very least need to imitate in these domains, if not in the other domains mentioned previously in this chapter. Therefore, except for societies which manage to keep themselves out of the economic system centered on the core, societies will either tend to overcome barriers to imitation or find themselves peripheral in an economic system centered on those who have overcome these barriers. This entails that while barriers to imitation can slow the adoption of innovations conferring greater development of the forces of production, they do not stop it.

It could be argued that by excluding what I am calling external societies I am making too broad an exception. External societies could be argued to be more important historically than I appear to give them credit for, either in number or for other reasons. And indeed, I do not want to deny that societies which remain external may be important for a whole host of reasons, not least of which being that their members may, in many situations, lead happier lives than those in the core. Nor are they unimportant in my analysis as they could innovate in a way that either causes them to be imitated by an economic core or allows them to become their own local economic core. But neither of these admissions undermines the analysis of imitation that I have argued for this chapter. Nor would the existence of external societies in large numbers. Even if external societies were large in number, they would not prevent the process of competition and imitation from driving forward

[137] Although there will likely remain some integration in the form of trade in almost all cases in which there is contact.

the development of the forces of production. By reducing the number of societies within which this process is occurring they may slow the process, but even just a few societies would be enough for competition and imitation to foster the development of the forces of production to a limited extent. As such, the existence of external societies, which can reject some innovations long term without being integrated into the economic system of those which hold this innovation, does not undermine the role imitation plays in the development of the forces of production.

## 5) Issues with Imitation

Introducing imitation allows for a more robust view of the spread of practices between societies than is permitted by military competition alone. In particular, it allows us to respond to the three disanalogies between societal and natural selection mentioned at the beginning of this chapter. These disanalogies were: The speed of historical change as compared to societal change, the fact that change frequently occurs without elimination of the less competitive, and the drastic differences between conquest and the struggle for survival.

On the first issue, if spread of forces of production were limited to military and market competition it would be unbearably slow, since it would need to wait for very many instances of military or economic defeat and replacement before a tendency would truly assert itself. Imitation allows the process to occur much more quickly, as societies adapt their practices in part in anticipation of the possibility of such conquest. Instead of simply waiting to be conquered, a society can imitate the society they perceive as a threat in order to avoid such a fate or to gain advantage over other neighbors. Additionally, they may begin to adopt practices of others without such a threat, if they believe that such imitation might allow them to better achieve other goals. All of this leads to a model that can operate on human timescales in a way that a model which follows natural

selection too closely could not. Effectively, forces of production could spread as fast as human beings can imitate. That speed will be partially dependent on technology, since elements such as technologies for the spread of information will determine how fast information can be spread and imitated. Of course, the speed at which human beings could imitate is quite a lot faster than the speed at which they do. The barriers to imitation mentioned above slow the process of imitation significantly. Furthermore, the fact that societies will not always imitate the elements that are responsible for the success of those they imitate, and the fact that they may occasionally imitate other societies that are less successful, further slows the process of the spread of development of the forces of production via imitation.

Additionally, imitation allows societal selection to more closely model human history. Even if there weren't the issue of the relative speed of human societal change, the fact is that human societies do adopt practices from others which allow greater development of the forces of production, without needing to be defeated economically or militarily to do so. Imitation also, therefore, allows societal selection represent the empirical world better than models that rely purely on competition.

Finally, imitation is required for the explanation of conquest itself. Conquest does not have an analogue in natural selection. Creatures in the natural world do not impose their genetic traits on others by defeating them in a conflict, as societies can impose their social traits via conquest. Nor does Carling go into much detail about the mechanism by which conquest translates into the adoption of practices of conquerors by the conquered. Sometimes this may take place by replacement, displacement, or eradication of the conquered by the conquerors, who may bring along their practices with them. And in these cases, the combination of conquest and displacement may be enough to explain the spread of practices through the spread of population. However, this only obtains when conquest is accompanied by mass settling of the conquering population into the conquered territory. When this is not the case, another mechanism is required to explain the spread

of practices. When the conquered population is not displaced by the conquerors, spread of practices occurs when conquered imitate the practices of their conquerors (or perhaps vice-versa), either by force or to achieve their own goals.

However, imitation poses a new set of problems to societal selection. The integration of imitation into historical materialism potentially makes for a much more complex and messy theory. First, imitation brings in notions such as class interests, race, nationality, gender, and identity in general. These are all very important to the actual unfolding of history, and their relation to societal selection broadly will be discussed more in depth in chapter 6. But they are involved in the theory more internally, as they often play a more direct role in imitation. I briefly discussed the important role that class might play in motivations for the imitation of methods of production, as well as the possible importance of class in determining who might be able to implement their imitations on a societal level. But I have not otherwise discussed class, and have not discussed other possible divisions of societies, such as race and gender, at all. Their role will likely be complex and multifaceted. There may be some difficulty or reluctance to imitate those considered to be of a different race, nationality, ethnicity, religion, or gender than oneself. If one considers another type of person to be evil or inferior this may cause one to disregard useful practices to be imitated. Difference may also encourage imitation, however, if those that are different are seen as successful and worthy of (partial or general) imitation for the sake of self-improvement. These various forms of identity may also provide lines along which imitation occurs when it might otherwise not have. One might take special care to seek out and imitate practices of those one considers similar.

These effects would need to be accounted for in a detailed elaboration of imitation, as they do clearly have some impact. However, they do not change the main mechanisms by which imitation operates. Reluctance to imitate others will at most limit or slow imitation, but it does not stop it or change the way it functions vis-à-vis the forces of production. Furthermore, in many cases, groups will still be very willing to imitate those they consider inferior. Groups considering themselves

superior will often culturally appropriate practices from those they consider inferior. They may even accept that the group they consider inferior might be better at certain practices, and therefore worthy of imitation in those practices, but while still believing on the whole that they are superior.[138] On the other hand, seeking to imitate others due to a commonality if anything strengthens imitation, since it might help allow a society to find practices worth imitating in a society they might not otherwise have looked at. Insofar as they encourage imitation which hinders further development the forces of production, this imitation will face the same problem that other such imitation has. It will hold back those who perform this imitation making it less attractive, and possibly opening them up to fail in military or economic competition. As such, these various social and cultural differences will have an impact, but their impact will go both ways, at times encouraging and at times hindering imitation, as well as helping or hindering the process of imitation being used as a vector for the spread of greater developed forces of production.

This may initially seem like an issue. But essentially the problem is not very different from the problem posed to natural selection, or societal selection, by the importance of chance factors in competition. It will make the process more complex, but not undermine the tendency. Those who imitate more efficient practices will tend to be able to find greater success, and those who imitate less efficient practices will not. As I will discuss next chapter, by efficiency here I mean extra labor efficiency. But for now, given the limited impact of these social divisions on the relationship between imitation and forces of production, and the fact that a detailed account would require much more extensive treatment, I will end my discussion of social division's influence on imitation here (though

[138] Many enlightenment thinkers, such as Montesquieu and Leibniz, explicitly claimed they were drawing inspiration from Persian, Chinese, or Indigenous American sources for their views. See Graeber and Wengrow, 2021, 29-31. Whether this is an example of imitating societies deemed to be superior, or imitating an aspect of a society in spite of believing them to be, on the whole, inferior would require an in-depth look at the various thinkers for which there is not space here, and will likely differ between cases. Chapter 2 of *The Dawn of Everything* (Graeber and Wengrow, 2021) has examples throughout of imitation that are either hindered or unhindered by cultural difference, helping show that the effect of cultural difference on imitation is not uniform.

social division will come up again later). However, I believe investigating it further it would be a fruitful line inquiry into the more precise ways societal imitation plays out.[139]

The second issue posed to imitation as a part of societal selection concerns general imitation specifically. For the moment I have not tied this last form of imitation directly to the forces of production. This issue, and the more general question of how success in these realms stems from the development of the forces of production, will be the subject of discussion in the section on extra labor in the next chapter. The focus here is on developing how the process of imitation functions. But if we assume for the moment that the success which inspires general imitation can be tied to the forces of production in some other way, the fact that it is not immediately and visibly related to the development of the forces of production has some advantages. Those seeking to imitate another society more wholesale will have cause to imitate the forces of production of that society without ever seeing imitation of these forces as their goal. General imitation can therefore provide an interest in adopting different forces of production without anyone needing to desire greater development of the forces of production as such. Therefore, it also avoids the problem posed by Brenner of the possibility that no class might have an inherent interest in developing the forces of production.[140] Imitation does not require any class to have an interest in developing the forces of production per se for them to do so. Rather, they might desire to imitate a practice or multiple practices that are not directly related to the forces of production, and may as a result unintentionally develop them. This is, for example what occurs in the case of technical imitation mentioned above. They may adopt a certain practice or technique in order to increase military power, increase their prestige, adopt the latest artistic trend, or for a whole variety of other reasons and still develop the forces of production without ever having intended to.

[139] Of particular difficulty would be finding anything that could be applied in a generalizable way. Social divisions are generally quite different in different areas and periods. As such most analyses of the relationship between social division and imitation will likely be of historically or geographically limited scope. This does not rule out the possibility of generalizable rules. But it does mean that such rules, if they do indeed exist, would need to be able to account for such variation.

[140] Brenner, 1986, pp. 51-53.

The final problem I will attempt to address is the vagueness of the process of imitation. Imitation, as I have described it, hinges on the subjective notion of "success". Success is subjective because it depends on the evaluation of individuals or groups. What is considered success in many domains will differ from society to society, and even from person to person, which makes it a difficult notion to pin down. In military and economic competition, it might be possible to define success in terms of victory or defeat, though this would seem unsatisfactory as it cannot define success in times of peace or in the absence of active competition. As mentioned above, in military competition one can recognize military superiority without having to be defeated to do so. In some domains, such as access to luxury goods, one could perhaps define another as more successful if they have access to more goods than others. But this only works if a society has strictly more than another. How are we to evaluate societies where one has greater access to one good while the other has greater access to another? And in some domains, such as artistic achievement, it is difficult to even begin to work out how one might establish a criterion that does not rely entirely on subjective views. And if the notion of imitation rests on such a subjective notion, what makes it dependent on the forces of production?

Imitation therefore allows for an account of selection for greater developed forces of production which is more consistent both with the historical timescale and with the way most spreading of practices actually occurs in human history. However, it poses two problems. The first is that general imitation does not clearly relate to the development of the forces of production. And the second is that success cannot be objectively defined for most, if not all, human practices. In the next chapter, I address both problems by establishing a means by which development of the productive forces translates into "success": Extra labor.

# Chapter 3: Extra Labor

The previous chapter ended with two difficulties: The first is that there is no clear means of determining what counts as "success" that could engender imitation in many domains. And the second is that even if there were, it isn't clear how one could link success in many domains, such as artistic or cultural achievement, with the forces of production. This chapter will attempt to address both problems with the concept of "extra labor".[141] I will begin by defining extra labor and showing that it allows us to measure which societies will be most capable of being successful, either competitively or in inspiring imitation. As I will discuss, this can be done without defining what practices constitute "success" since extra labor measures a society's ability to devote resources to whatever practices it considers valuable. I will then show how extra labor in a society is primarily dependent on the level of development of its forces of production.

The lack of a clear link between the forces of production, and competitive and imitative success poses a problem to selectionist views of historical materialism even without the addition of imitation. As Vivek Chibber notes in his critique of Carling, even the more apparently straightforward question of the relation between the development of the forces of production and military success is

[141] I use the term "labor" here as opposed to "labor-power". Labor is the human activity which transforms the material world. Labor-power is a worker's capacity to labor, even if not yet set in motion. Marx and Engels, 1996, p. 177. I use the term labor here since I am referring to the human activity of laboring, and not the worker's capacity to labor. Additionally, extra labor concerns only labor which is actually performed and not the abstract capacity to labor. This is important as it means that the relevant quantity is not the amount of time available to laborers to perform extra labor, but rather the actual amount of labor performed as extra labor. To illustrate this, imagine two societies. The first has freed up a great amount of time that could be used for extra labor but does not actually have its workers perform any of it. The second has not freed up as much time, but all of this time is devoted to performing extra labor. The first performs no additional extra labor, the second performs some.
In the discussion below I do discuss extra labor as that labor which is potentially available for activities that increase competitiveness or inspire imitation. However, "potentially" here is meant to allow for the possibility that labor which could be performed to aid with competitive or imitation inspiring pursuits might be performed for activities which do not contribute to either. It is not meant to cover labor that could have been performed to further competition or the inspiration of imitation but is not performed at all.

not easy to establish.[142] Greater productivity may allow a greater capacity to produce weaponry and equip a military. One might also be able to argue that greater development of the forces of production correlates with possessing more advanced weaponry. However, there are many other factors that come into play in military conflicts, such as luck, tactics, and discipline.[143] The advantages of developed forces of production can provide a bias towards military success for societies wielding them, but not a very strong one. And as I argued in chapter 2, while a bias may be able to establish a tendency, some biases may not be strong enough to establish the sort of tendency required. Here, for instance, greater developed forces of production providing a few military advantages is not enough, or at least not always enough, to explain the relatively rapid development of the forces of production in human history. As such, a stronger link between greater development of the forces of production and greater ability to compete militarily would be helpful in showing how greater developed forces of production can explain economic, military, and imitative success.

Additionally, I propose that extra labor can solve the problem of the lack of a clear definition of "success". To be clear, what is meant by "successful" practice in this context is a practice that engenders imitation by other societies. For existential competitions, such as market and military competition, this success will generally consist in practices that allow a society to gain the upper hand in these arenas of competition. But for other forms of imitation, what counts as success will largely be what is valued in a given time period and region of the world. What constitutes this sort of "success" may vary between times, places, and societies. But if it can be shown that those with greater developed forces are more likely to be able to generate imitators then this would bypass the problem. The important notion for our purposes is not what such success might involve in any or all

[142] Chibber, 2011, pp. 73-78.

[143] Machiavelli emphasizes these other aspects to the extent that he is often criticized by modern authors of downplaying the importance of gunpowder. Oman, 1937, pp. 93-96; and Gat, 1989, pp. 4-7. However, while this critique is not misplaced, he was not wrong in emphasizing these other factors, especially the importance of tactics, military discipline, and drills. Gilbert, 1986, pp. 25, 28-29; and Kubik, 1997, 14-17.

cases, but whether the forces of production provide an advantage in achieving it on a consistent basis. If more developed forces of production can be linked to a greater ability to achieve imitative success, then the thorny problem of what will inspire imitation can be avoided. The content of imitation is much less important for our purposes than the role it plays in development of the forces of production. The difficulty lies in linking the forces of production to such broadly defined success. This link is what I call "extra labor".

## 1) The Composition of Extra Labor

Extra labor is the quantity and productivity of labor exceeding the amount required to provide the means of subsistence[144] to the immediate producers of the era and the labor required to maintain stability in a society.[145] In other words, extra labor is any labor that is available once the labor required to maintain a stable society has been subtracted.[146] Or, to illustrate it with an equation:

[144] By means of subsistence here I understand those commodities that must be provided for the laborer in order to bring them to work. It is a quantity which varies significantly by society and time period but can be taken as given in a specific society and time. In this sense means of subsistence is "that which is used by the worker to subsist" and not "the bare minimum which a worker would require to subsist." This interpretation is largely drawn from from the passage in *Capital* where Marx asserts that the value of the means of subsistence includes a "historical and moral element" (Marx and Engels, 1996, pp. 181-182) beyond the necessities for mere subsistence; this represents the majority of Marxist views on the subject. See, for example, Robinson, 1966, p. 30; Mandel, 2002, p. 19; Dobb, 1973, pp. 152-153, 262; and Harvey, 1982, p. 22. There are differing views about the extent to which class struggle enters into the determination of the means of subsistence but not on the actual means themselves. See Mohun, 1994; and Starosta and Fitzsimons, 2017.
Ricardo, from whom Marx drew much of his economic thought, also views the "natural price of labor" as dependent on "the habits and customs of a people". Ricardo, 1911, pp. 54-55. Ricardo does use the notion of means of subsistence as denoting the bare minimum required to subsist (Ricardo, 1911, pp. 56-57), but it is the "natural price of labor" and not the "means of subsistence" for Ricardo which determines the value of labor. Ricardo, 1911, pp. 48, 52.

[145] Extra labor is not to be confused with surplus labor, which has a slightly different meaning. Surplus labor is the labor above and beyond that which is required to provide the means of subsistence to those who labor. Extra labor additionally contains the labor required to keep a society stable. Extra labor is therefore surplus labor minus labor required to maintain stability in a society.

[146] More on this later in the chapter.

Extra labor = total labor available to a society – (labor required to provide the means of subsistence + labor costs of stability)

Extra labor is the labor that a society can harness beyond that which is required for the basic functioning of a society. The society must be able to provide the means of subsistence to those who labor, and it must be able to remain stable. Any extra labor that is available, however, may be used for other purposes. Extra labor is therefore the labor that is potentially available for pursuits that are either directly competitive or may otherwise inspire imitation in others. The amount and productivity of such labor is therefore vitally important as it measures the resources that could be mobilized towards the kinds of pursuits that might cause others to adopt the practices of a society.[147] The societies with the greatest ability to compete or inspire imitation will be those which maximize this extra labor by maximizing the amount and productivity of the total labor available and minimizing the amount of labor required to produce the means of subsistence and maintain stability.

## 2) Extra Labor and Success

Those attempting to underpin the primacy of the forces of production using a selectionist model face the problem of linking competitive success to greater development of the forces of production. In military competition, for instance, greater development of the forces of production alone does not clearly lead to military success. Knowing that a society has greater developed forces of production might allow an observer to say that this society would be able to produce more

[147] Every element of producing and harnessing goods or services comes down to some quantity of labor, from raw material extraction, to production, to distribution. Mandel, 2002, p. 20.

weaponry or more food to supply their armies due to the greater productivity conferred by greater developed forces of production.[148] However, as Vivek Chibber points out, this is far from a decisive advantage.[149] Insofar as the forces of production allow for greater mobilization of extra labor, however, the advantages they confer towards military success become much more apparent. Extra labor measures not only the capacity of a society to produce weaponry, but also the number of soldiers it could be able to field, the number of generals and military engineers it could be able to train, the amount of training it could be able to provide them, and the resources it could be able to put towards any other institutions that either directly aid, or indirectly support, military endeavors. In short it measures the labor that a society could broadly devote to its military. A similar logic can be applied to any other domain, greater extra labor allows a greater number of artists, scientists, people to produce or procure luxury goods, etc. All of this means that a society with greater extra labor has greater labor to devote to achieving success in any or all these fields than one with lesser extra labor.

Extra labor therefore shows us how the vague desire to imitate a society (called general imitation in chapter 2) tends to translate into greater extra labor (and therefore, as we shall see, into greater development of the forces of production). It links success broadly speaking with greater extra labor. Those with greater extra labor will be able to mobilize more resources towards pursuits which might be imitated. Other societies may be able to succeed in some domains more than a competitor with greater extra labor. However, the society with greater extra labor will have more to devote to competitive and imitative pursuits as a whole and as such will, on the whole, tend to be more successful in more domains than their competitors, thereby being more likely to be considered worth imitating.

[148] McNeil claims that food was in fact the main limiting factor on the size of armies and their ability to campaign in the ancient world. McNeil, 1982, p.2. The productivity of food production is on this account a key factor in military campaigns, meaning that greater forces of production applied to food confers a significant military advantage.
[149] Chibber, 2011, pp. 76-77.

Another advantage of this measure is that it allows us to abstract from the questions of the varied criteria for "success" in different times and societies throughout history. Whatever the measure of success may be, a society with greater extra labor is going to be able to devote more to achieving that measure of success. As such, extra labor should be predictive of which societies find themselves the subjects of imitation by others. I need not make a plethora of rather complex and often very debatable claims about what might be considered worth imitating in various societies and eras. The only claim I need to make is that societies with greater extra labor will tend to be imitated by others because they have a greater ability to excel at whatever endeavors are valued by their contemporaries.

The key assumption that this relies on is that the sorts of success that will inspire imitation will be achieved more easily with greater extra labor available to devote towards achieving it. This will, in most cases, be true. Extra labor can translate into more people working on a project, greater labor devoted towards the development of tools used, and/or greater labor devoted towards education of those involved in the project. Extra labor can even aid in competition that might seem intuitively about being inefficient, wasteful, or austere. One could imagine two monastic orders, for instance, or perhaps two highly religious societies competing to be the most austere or self-depriving, allowing them to devote as much of their time as possible to religious worship. Even here, however, extra labor is being performed, it is simply in the form of religious worship. The society that can produce most efficiently, and therefore able to free up the most time for religious worship, is the one that will be most likely to appear most pious.[150]

[150] Like a lot of the success driving imitation, the labor of such monks also likely performs an ideological role. The valuation in practice of austerity allows the peasantry to be more easily content with their own austere lot in life, due to the promise of reward in the afterlife. Additionally, such self-deprivation as example might allow for greater surplus extraction. It might cause the peasantry to see self-deprivation as an ideal, meaning they would be more willing to give up the products of their labor to the nobility (and clergy).
Furthermore, this example helps illustrate the fact that greater extra labor by no means entails greater living standards or the production of plenty. It could quite easily all be devoted to pursuits which do not improve people's lives in the slightest.

There are, however, some possible exceptions to this. A society which values primitivism, or a return to nature may reduce its extra labor and could even be imitated by another who values the same thing. However, such cases are rare to non-existent in the history of class societies, and cases of such societies being imitated by others are even rarer.[151] And indeed, societal selection predicts that such experiments would be rare and either short lived or peripheral since they reduce extra labor and therefore come at the cost of all sorts of other elements which are valued by the society in question. Additionally, even if a primitivist experiment were to gain traction on a large scale, it would be at a military and economic disadvantage relative to societies which did not, for whatever reason, decide to pursue primitivism. The latter societies would be able to conquer or, in some other way, subjugate the primitivist societies and this would, at the very least, discourage others from adopting primitivism. It would also encourage the society or societies that adopted primitivism to abandon it. The non-primitivist conqueror may even impose an end to primitivism in its own interest. Imitation is very often the vector by which societal selection asserts itself, but its ultimate guarantor is military and economic competition.

While there are few examples of societies that adopted primitivism on a wide scale, there are many examples among the earliest states of people who likely wished to abandon their situation as subjects to a state and return to hunter-gathering. Indeed, as I have mentioned previously, hunter-gatherers appear to have had a significantly better standard of living than the inhabitants of early states.[152] However, these desires have resulted either in flight from a society, which does not actually change the nature of the society in question, or in its collapse, which entails the dissolution of the society in question.[153] In neither case does the society readopt hunter-gathering. And while in

[151] Perhaps the closest example to this today is the existence of "ecovillages", small communities which attempt to drastically reduce their environmental footprint. As it stands, they remain generally few, small, and likely impossible to adopt on a large scale. A typical ecovillage will number in the low hundreds, and some are by design limited to a small number of people. Bocco, Gerace, and Pollini, 2019, p. 9. Additionally, even many of these may not be properly described as primitivist since they make use of relatively advanced technologies, such as solar panels and wind turbines. East, 2018, pp. 69-70.
[152] Diamond, 2017, p. 101; Diamond, 1999; Diamond, 2002, p. 700; Giddens, 1981, pp. 22-23; and Scott, 2017, p. 8, and pp. 232-233.
[153] Scott, 2017, pp. 184-187, and p. 232.

the case of collapse, hunter-gatherer societies may result from the collapse, the collapse itself is a failure of the previous society to maintain stability. I will discuss the question of stability later in the chapter. But it is worth reiterating here that desire for something does not translate into imitation, nor does imitation of something necessarily require that it be desired.

Generally speaking, however, none of this is a problem for societal selection for the same reason that it is not a problem for natural selection. Natural selection is concerned with the greater potential that creatures with greater fitness have to survive.[154] Similarly, societal selection is concerned with the greater potential that societies with extra labor have to defeat their neighbors competitively or inspire them to imitate. It would entirely acceptable for societal selection were a society with greater extra labor not to use this extra labor to its full potential and thereby lose competitively, in the same way that it is acceptable to Darwinian theory that a creature with greater fitness might fail to survive due to its failure to utilize its adaptive traits as efficiently as it could have. Bad luck and accident can occasionally lead to the downfall of a society that societal selection would expect to succeed in the same way that they can cause a creature with greater fitness to be killed and unable to pass along their genes.

However, it is not unreasonable to expect that societies will tend to use extra labor relatively effectively. Given the importance of existential competitions, such as military competition, to the individuals constituting a ruling class keeping their position of power, this is unlikely to be something that ruling classes would easily neglect.[155] As for devoting resources to what might be "useless" pursuits as far as societal selection is concerned, it is hard to imagine this happening to a large enough degree to be problematic. First, there are not very many pursuits that would be entirely useless from a societal selectionist point of view. They would need to be activities that are not useful to military and economic competition and are not valued by other societies, where excellence would

[154] Kitcher, 1982, p. 57; and Mayr, 2002, pp. 132-133.
[155] Military spending was the largest item in the budget of most states before the twentieth century. Eloranta, 2005.

not inspire interest, awe or imitation.[156] Furthermore, most, if not all, societies will devote some resources to competitively and imitatively useless pursuits by virtue of the fact that societies devote resources to a very large range of pursuits dependent upon the decisions and capacities of its members. For this to be a significant problem, a society with greater developed forces of production would have to devote a significantly greater portion of its resources to pursuits that do not help the spread of its practices than its less developed neighbors. This society would need to be unlucky in what its members decide to pursue and what others desire to imitate. Alternatively, it might be possible that something about whatever it is that gives a society its advantage in the development of the forces of production might also cause a greater proportion of their labor or time to be used in ways that do not inspire imitation. Imagine a society that introduces a machine that is more productive than previous ones, but which physically and mentally exhausts those who use it to the point that they spend free time they might have spent on potentially productive pursuits (carpentry, fixing and cleaning, cooking meals, various artistic and intellectual pursuits…) collapsed on a couch exhausted. In such a case, the question will be whether or not the benefits outweigh the costs, whether the increased productivity of the labor using the machine outweighs the labor lost in the useful activities pursued in workers' free time (labor which will in many cases need to be done by someone else if not performed by the worker themselves). In cases where the extra labor benefits of a practice do not outweigh its costs societal selection will not predict that this practice will tend to spread. Greater developed productive forces will not tend to spread when they are inherently accompanied by something which outweighs their competitive or imitative gains.[157] As such, extra labor performs the same role in societal selection as fitness does in natural selection. It is not in all

[156] It is possible that, given strong enough cultural, ideological, or other differences, some practices valued in one place might not be valued in another. However, this would rarely if ever reach the point of full incommensurability. There are arguably always certain commonalities between societies as to what they value, especially when in close temporal or geographic proximity. And often when the difference is starkest, the productive difference between the two societies is enough for military conquest and imposition, such as was the case for much of European colonial history.

[157] And, in the unlikely event where benefits and costs of greater developed forces of production are nearly equal, societal selection will not predict a tendency either way. Here, the fate of this new way of producing will be left up to historical contingency or more immediate analyses such as class analyses.

cases and everywhere the deciding factor of competition or imitation, but societies with greater extra labor will be favored as they have more resources to devote to such endeavors. Therefore, it is the practices of the societies with greater extra labor, especially those practices which are responsible for their success, which will tend to spread and become the norm.

Importantly, this means that societal selection predicts that societies with greater extra labor will spread their practices, not that societies which succeed in military or economic competition will spread their practices. As such, when a society with greater extra labor is conquered by a society with lesser extra labor (due to luck, a different relative focus on military, or the use of other societally specific advantages), societal selection predicts that the conqueror will tend to imitate the conquered instead of vice versa. This is because while the conqueror may have been able to succeed militarily, the conquered will still tend to have been able to succeed in more domains due to its extra labor advantage. The conqueror will in these cases tend to find more of value to imitate in the conquered than vice versa.[158] This prediction is worth keeping in mind as it will play an important role in chapter 7.

Extra labor allows for a Darwinian account of a tendency to increase extra labor, an increase which, I shall argue below, can only be consistently achieved by developing the forces of production. The strength of the mechanism described above is still difficult to quantify and so is up to the judgement of the reader as to whether it can constitute a strong enough tendency to be convincing. I contend that it does indeed provide a strong enough bias to account for the speed of development of the forces of production in human history. Even if it does not, however, I hope this basic layout of the ideas above has shown the great potential that exists in an evolutionist view of historical materialism that makes use of the human capacity to adapt and imitate.

[158] This process may be instantiated by many of the peoples that invaded China and established dynasties, such as the Northern Wei, Jin, and Qing. The Mongols, perhaps the most famous of these conquerors, adopted the practices of the Han Chinese to a lesser extent than the aforementioned conquerors, but this was arguably a major reason behind the relatively short-lived tenure of the Mongol Yuan dynasty. Fan, 2018, pp. 51, 61.

## 3) Factors Contributing to Extra Labor

I have defined extra labor as being determined by three elements. Extra labor is maximized by maximizing the first of these components (the total amount and productivity of labor available to a society), and by minimizing the other two (the labor required to provide the means of subsistence, and the costs of stability respectively). This section will examine how each of these factors contributes to extra labor.

### *Productivity and the Means of Subsistence*

The most straightforward way to increase extra labor is to increase productivity via development of the forces of production. Such an increase in productivity can increase extra labor without increasing extra labor time. Developments in smithing might allow for greater quantities of weapons to be produced by the same number of laborers working the same hours, for instance. This means that a society with greater developed forces of production might be able to do more with its extra labor time, giving it an advantage over a competitor with lesser developed forces, even if the overall labor time it is able to devote to competitive pursuits is not greater than that of its competitor. Here extra labor is increased by a development in the forces of production that increases the total productivity of labor available to society. As such, increased forces of production can straightforwardly increase extra labor by constituting an increase in the productivity of labor.

But the development of the forces of production further enables increasing extra labor in the second way: by decreasing the amount of labor required for the means of subsistence. Greater

developed forces of production entails greater productivity. When applied to production of the means of subsistence these greater forces allow given means of subsistence to be produced with less labor, freeing up labor for other uses. Here increased productivity of labor allows for a greater quantity of labor to be employed in extra labor, as opposed to it increasing the productivity of the labor already included in extra labor. If an advance in agricultural techniques allows fewer farmers to produce the same amount of food in the same amount of time, then labor will be freed up from farming for other professions. Most directly, this might simply mean some farmers changing professions. However, this could take place in other ways in societies where ability to change profession is restricted. The change could for instance be intergenerational. If a farm no longer needs as many people to cultivate it, the person or people working on the farm will likely send a greater portion of their children to seek some other means of sustaining themselves than they would otherwise. In a feudal society, greater productivity might allow a feudal lord to demand more labor from their peasants, which might either be of a different kind or might allow them to trade a greater amount of agricultural product for other items. The latter of these would foster the development of other industries through increased demand, or allowing them to be patrons to a greater number of artists, scientists, or thinkers. The general point is that advances in productivity mean that more labor can be utilized for other purposes. There may be societal barriers to professional mobility but even with these barriers, if given enough time, labor will shift.

The development of the forces of production, therefore, allows both for the increase in productivity of labor available to a society and for the decrease in the labor required to produce the means of subsistence. However, it is not the only factor that allows this. The length of the working day and intensity of labor are also important factors in extra labor. Increases in working day length increase the total labor time in a society thereby increasing extra labor.[159] Increases in labor intensity are another means of increasing labor productivity meaning that it can have similar effects to the

[159] And, as Marx notes, while surplus value may only be an important notion in capitalism, surplus labor is a feature of all class societies. Marx and Engels, 1996, pp. 243-244

development of the forces of production.[160] An intense working hour with an obsolete machine may be able to produce as much as a more relaxed working hour with a state of the art one. Therefore, working time and intensity will both also be determinants of extra labor, contributing to increasing the total amount and productivity of labor available and to decreasing the labor required to produce the means of subsistence.

*Labor Cost of Stability*

The final component of determining extra labor, the costs of stability, is a more complex subject and will need to be treated in more detail. Readers may have been surprised by its inclusion in extra labor. In historical materialist analysis stability is, after all, typically the creation or result of superstructures, not forces of production. Marx is quite clear that the presence of military force at a place of production is not a part of the forces of production for instance.[161] And indeed, I do agree with Cohen and others that political, religious and ideological institutions ensuring stability, while essential to the forces and relations of production, are not a part of them.[162]

[160] Marx discusses intensity of labor as a means of increasing relative surplus value by the rather unique means of condensing labor into a shorter amount of time. This is contrasted with increasing the amount that a worker could produce with the same amount of labor, a result generally achieved by increasing the development of the forces of production. Marx and Engels, 1996, p. 413. However, while this may have consequences for value theory, for the purposes of extra labor both the condensation of labor and the increase of productivity of labor are effectively the same as both entail an increased productivity per hour of labor.
The only way in which there might be a difference for extra labor is if we understand the laborer as being only physically able, or socially willing, to provide a given quantity of labor per day. An hour rendered more productive by intensified labor would use up more of the laborer's physical capacity than an hour of labor rendered more productive by more efficient forces of production. The discussion of a tradeoff between intensity and duration of labor immediately preceding the passage just cited might indicate that this is indeed a consequence Marx had in mind. Whether or not he does, the importance of the fact that labor intensification does run up against physical and social constraints will be crucial to my later discussion of the intensification of labor.
[161] Marx and Engels, 1989b, p. 186.
[162] Cohen, 2000, p. 33.

Why then are the costs of stability included in this analysis? For the simple reason that they do and must form a part of determining extra labor. Labor needs to be performed for the relations of production of a class society to exist in the first place. One class must be compelled to work for another, by force or persuasion, in all relations of production of class societies. Without such institutions, or when such institutions are unable to exert their influence, class relations collapse.[163] Additionally, there are costs entailed by the very existence of class relations, which generate antagonisms which can result in work stoppages, riots, and revolts. Since these costs are inherent, but also variable, there is no way around the fact that any society that diminishes the sum of these costs will be able to gain an extra labor advantage over one that does not. As such, the costs of stability will need to be taken into consideration in the determination of extra labor.

There are two components to the costs of stability that I have mentioned above: the costs of superstructures which grant stability and ensure the functioning of a set of relations of production; and the costs of disruptions of the prevailing order. These are both two sides of the same decision. Deciding the proportion of labor devoted to stability-granting superstructures generally consists in a tradeoff between the costs of those superstructures and the costs of unrest. There is a tradeoff between the resources devoted to, for instance, a police force and the costs and likelihood of unrest. A large well-funded and well-equipped police force may deter protests and strikes, and may be able to limit the damage done by such disruptions, but it does so at the cost of resources that could be used elsewhere. Therefore, there will be a tradeoff between the costs of maintaining a police force and the costs incurred by disruptions. As such, I will generally discuss both together in the decision of what resources to invest in the maintenance of stability.

[163] Indeed, there is evidence throughout history that human beings will often attempt to escape their class relations when they are given the option. Many inhabitants of the earliest agricultural states would escape into "secondary primitivism", especially during the frequent collapses of these early states. Scott, 2018, pp. 184-187, and p. 232. Even in later periods, after class society had been well established as a way of life, people would sometimes attempt to escape. From the sixteenth to the eighteenth century, for instance, those in lower classes at the margins of the European colonial empires were sometimes able to escape and form maroon or "Baymen" communities or pirate crews. Rediker, 2004; Price, 1996, p. 3, pp. 24-25; and Rediker, 2004, pp. 6-7, p. 45, pp. 57-59.

However, the above tradeoff occurs within a society that is fundamentally stable. There may be strikes, protests, disruptions, and even riots, but these are all costs borne by even the most stable of class societies. There is nonetheless a situation that stability-granting superstructures are built to avoid, and that is the destruction of the relations of production. A society only fails to achieve stability, in the sense being considered here, when the relations of production collapse. This occurs in two situations. The first is when society itself collapses. Here relations cease to function as part of a broader crisis in a society, one that may see its dissolution or at least a significant loss of political, economic, or social complexity.[164] State institutions may fall apart; inhabitants may perish in large numbers or leave urban areas; economic relations and social hierarchies that existed previously may cease to be. As I mentioned above, this can result in the creation of new societies, perhaps functioning using an earlier set of relations of production. And the second situation where relations of production are interrupted is when the relations of production begin to fetter the development of the forces of production. This, as I argue in Chapter 4, results in a period of social revolution over the course of which the old relations are replaced by new ones. This means that a society in this sense is considered stable in the face of major uprisings, coups, general strikes, etc. so long as the relations of production continue to function normally during this period. It is only when these relations of production are threatened that society becomes unstable in the sense used here. For example, in the case of capitalism this might be when the very idea of working for a wage is seriously called into question.

Costs of stability include labor put towards direct coercion (such as that of the police, or those working in courts and prisons), labor put towards the production and maintenance of ideology (such as that of priests, and some of the labor in schooling, journalism and academia), and labor lost through disruptions due to unrest. Reducing the amount of labor used in these activities, or lost due

[164] Diamond, 2005, p. 3.

to their non-performance, allows more labor to be used in other pursuits, which have the potential to either give a competitive edge or foster imitation. As such, societal selection will predict that societies which are able to reduce the costs of stability will tend to retain these institutions instead of reverting to old ones and to spread their institutions at the expense of those of others.[165] As noted in the last chapter, when it comes to imitation, this means that it is possible that the institutions and practices which are responsible for these low costs of stability will be imitated, but it is also possible that other societies will simply attempt to imitate the society as a whole, or that they will imitate other institutions and practices which they mistakenly believe to be responsible for what they admire in the society they are imitating.

The costs of maintaining stability therefore constitute a factor in extra labor since additional extra labor can be freed up with more efficient repressive and ideological practices. It seems unavoidable therefore that they must be integrated into the analysis I am proposing. However, as the rest of this chapter will seek to show, admitting that the costs of stability form a part of extra labor does not weaken the primacy of the forces of production. On the contrary, I believe that the primacy of the forces of production is strengthened by this inclusion.

[165] These are essentially part of the same process. Institutions that give a competitive advantage will spread and be maintained in order to avoid being defeated by neighbors that do have such institutions. According to Perry Anderson, absolutism once developed could not be jettisoned by the nobility without jeopardizing their own existence, no matter how much they may have been dissatisfied with it. Anderson, 2013a, p. 54. He doesn't specify precisely why, but given that "Absolutist states […] were machines built overwhelmingly for the battlefield" it seems safe to assume that they would be jeopardizing their existence by weakening themselves militarily relative to their neighbors. Anderson, 2013a, p. 32.

*What is the Superstructure?*

The first step in working out the role played by stability-granting superstructures in this analysis is to be clear about what is and is not part of the superstructure. For this I will largely follow G.A. Cohen's definition of the superstructure, with some addenda of my own along the way.

The superstructure is composed of the "non-economic [facts or phenomena] whose character is explained by the nature of the economic structure", and the important claim in Marxism is that such non-economic facts are superstructural.[166] In other words, the superstructure is functionally explained by the economic base (i.e. the forces and relations of production) *by definition*. The usual point of contention then becomes not whether or not the superstructure is explained by the economic structure, but rather whether many non-economic facts or phenomena are superstructural. However, this is not at issue here since this section is considering the effects of the superstructure on extra labor and not its relationship with the economic structure.

Superstructures are therefore those phenomena which serve a function with regards to the economic structure.[167] Typical examples of such phenomena are many elements of the courts, laws,

[166] Cohen, 2000, p. 216. Cohen later revised his definition to be about facts or phenomena, and not institutions as a whole since a single institution may perform both superstructural and non-superstructural roles. Cohen, 2000, p. 216, and pp. 286-288; and Cohen, 1988, pp. 178-179. The university, for example, may perform superstructural roles such as developing, articulating, and propagating ideology, but this is not all that a university does. First of all, the university performs other, non-superstructural roles, such as educating some workers to perform tasks that they would otherwise be unable to. Second, some activities at a university can be neutral towards or even undermining of the prevailing relations of production. It may, as a side effect, provide space for the articulation of ideas that run contrary to the relations of production, such as Marxism. Of course, such side effects need to be outweighed by the benefits of the institution generally, or the institution would actively be undermining society and be selected against. But they can exist and often do. Institutions therefore perform a whole host of roles, and it will only be some of these, such as developing ideology, which will be superstructural.

[167] With regards to the superstructure as an architectural metaphor, a functionalist understanding of the superstructure sees the superstructure as more akin to the superstructure of a suspension bridge than a building. The superstructure of a building does not necessarily serve any role in keeping the base of a building structurally sound. A building's foundation can hold together without walls, and walls can stand without a roof. In a suspension bridge, however, the towers and cables of the bridge perform the necessary function of keeping the bridge standing. The towers and cables would have no reason to exist without the bridge, but the bridge could not stand without the towers and cables.

the police, prisons, religious institutions, etc. Importantly, this definition excludes aspects of these institutions which do not perform any role in relation to the economic base.[168] As such not all social facts will be superstructural. For instance, the requirement that Muslims pray towards the city of Mecca, does not necessarily have an impact on the economic base. The only requirement for these facts is that they not come into conflict with the economic base.[169] If they do, historical materialism predicts that they will be changed, ignored or that support for them will dwindle.

Among the elements I will include as part of the superstructure is ideology. Here I will only discuss the functional role of ideology in cementing class relations and allowing societal stability.[170] Though I do believe Marx took ideology to imply misleadingness or falsehood, and that he wasn't wrong to do so, my current analysis does not require this additional premise. Therefore, I will limit myself to describing the social role of ideology without making any pronouncements as to its inherent falsehood, misleadingness, or the necessity of getting rid of it. Ideology, in the sense I will be using it, describes the ideas or ways of thinking, dominant in a set of prevailing relations of production, which defend the current relations either by justifying them, mystifying them, obscuring them, or deflecting attention away from them. [171]

It is important to distinguish two aspects of ideology. The first is the content of the ideas included in it. This aspect of ideology is relevant in the analysis of a society to gain some understanding of its prevailing ideology and the effects of such ideology. But it will not be a major concern for us here. The second aspect is the process of production and enactment of ideology. The major superstructural functions of many institutions are the production, consolidation, or defense of

[168] Cohen, 1988, p. 169.
[169] Cohen, 1988, p. 159.
[170] Leopold, 2013, pp. 6-8; and Althusser, 1969, pp. 231-232.
[171] This definition is at odds with some Marxist thinkers in that it excludes the possibility that ideologies could undermine the prevailing set of relations. Lenin, 1989, p. 107; Gramsci, 2000, p. 330; and Althusser, 1990, p. 23. An ideology which truly undermines the relations of production would be a contradiction in terms according to my definition. Again, however, this is a definition that is meant to describe ideology only in the ways that will be relevant for this analysis. Whether or not a set of ideas that is truly threatening to the ruling class can be accurately described as ideology in a more expansive sense will not be further discussed in this work.

ideology. Research institutions may promote research which defends the ruling ideas, media institutions might privilege the spread and defense of these ruling ideas, religious institutions might enshrine the hierarchies or values of the relations of production with the authority of God, gods, or other spiritual beliefs.[172] This second aspect, the production and enactment of ideology, will be the more important aspect for the determination of extra labor. Determining the costs of an ideological belief would require an analysis of the labor required to produce and promote said belief. This includes not only the actual costs of producing and diffusing the ideas, but also the set of practices that might be required to cement these ideas and the practices that might be a consequence of these ideas.[173] Religious ideology requires not only the time of the priest, but also the time of the believers. A nationalistic ideology might require that labor and resources be devoted to a large army that sees no use. A liberal ideology might even entail that some amount of knowledge and culture production be devoted to dissenting views in the name of allowing a free marketplace of ideas.[174]

Cohen initially held that ideology did not form a part of the superstructure, because it was not institutional.[175] However, in light of his reformulation of the definition of superstructure in

[172] Marx illustrates the mutability of Christianity to serve an ideological role in a changing social landscape in his critique of the *Reinischer Beobachter*. Marx and Engels, 1976b, p. 231.

[173] As Barbara Fields (1990, p. 112) puts it "ideology must be constantly created and verified in social life". What I have termed the production and enactment of ideology is very close, if not identical, to Althusser's "material existence of ideology". Althusser, 2020, pp. 40-44. What concerns me however is not ideology as the material practice of subjects however, but rather the societal costs of the practices which produce, maintain and express ideology.

[174] Received doctrines may in fact be strengthened by allowing the expression of dissenting views, without which their proponents may forget the main motives or arguments supporting them, as J.S. Mill famously argued. Mill, 1865, pp. 20-26. Such expression may allow for a dissenting view to supplant the prevailing opinion, but this should not be the case so long as the prevailing opinion is more appropriate to the time than its competitors. "Even progress, which ought to superadd, for the most part only substitutes one partial and incomplete truth for another; improvement consisting chiefly in this, that the new fragment of truth is more wanted, more adapted to the needs of the time, than that which it displaces". Mill, 1865, p. 27. And indeed, if there is a set of ideas which better defends the prevailing relations of production, societal selection would predict that it will supplant the currently dominant ideas.

[175] Cohen, 2000, pp. 45-46, and p. 216. It is worth noting in passing that Cohen does not, even initially, appear strongly wedded to the notion that ideology is not superstructural, noting that "little will rest on this decision, and much of what we say about the superstructure will apply to ideology too". As such, it appears that Cohen viewed ideology as playing a very similar role to the superstructure, and the reason it was initially excluded was because it was not institutional.
Cohen's initial formulation of superstructure as institutional, appears to have largely rested on Marx's use of "legal and political" as qualifiers for the superstructure in his first use of the term in the 1859 Preface. Cohen,

*History, Labor and Freedom*, it is not clear that he would continue to hold that ideology is not a part of the superstructure.[176] Here he redefines superstructures from being institutions to being "facts or phenomena", and Ideology is not difficult to classify as a fact or phenomenon. Whether or not he would have changed his view on the matter, I contend that ideology does form a part of the superstructure. Ideology is a non-economic phenomenon whose character is explained by the nature of the economic structure, and as such fits the definition for a superstructure. Ideologies perform important functions with regards to the economic structures and the need for them to perform this function molds their character.[177] Ideologies justify economic structures, they obscure them, they motivate people to participate in them and find a stake in them. A worker who believes that with enough hard work and luck they will be able to become part of the capitalist class will likely be more motivated to participate in the capitalist system, to work hard, and sometimes to find ways to innovate or improve productive practices, than one who does not accept this ideological view.

Before ending this section, I should note that this is not meant to be an all-encompassing account. The ideas of the ruling class may be in every epoch the ruling ideas, to paraphrase Marx,[178] but this does not mean that all ideas, all institutions, and all practices will promote and defend the current relations. They will however tend to, because when they do, they allow the greater development of the forces of production which provides a selective advantage in the process of societal selection. Ideas which undermine the prevailing relations of production will still exist, because they correspond to certain material interests of classes other than the ruling class, but they will be repressed, ignored, or drowned out by the ideas of the ruling class. The ruling class will, however, be largely unable to eliminate dissenting ideas entirely. In some cases, it will be practically

2000, p. 216. KMTH does not contain any further justification of this and I am unaware of him using any other arguments or textual evidence for it in other works.

[176] Cohen, 1988, pp. 178-179; and Cohen, 2000, pp. 386-388.

[177] With regards to ideology, this functional relation, and even its possible Darwinian underpinnings, are discussed by Jonathan Wolff. Rosen and Wolff, 1996, pp. 239-241.

[178] Marx and Engels, 1975b, p. 59.

impossible to do so. In others it would be prohibitively costly to do so. And even were it to be possible to eliminate a set of dissenting ideas entirely and at a reasonable cost, this would rarely be undertaken, according to societal selection, except when the costs of eliminating the ideas in question is less than the costs of allowing the ideas in question to exist.

*What is a Stability-Granting Superstructure?*

There are two major roles that superstructures perform vis-a-vis the economic base. The first is to promote the proper and efficient functioning of the relations of production. One way they do this, that I have already noted, is that ideologies can make for a more productive workforce. Another way they do this is by ensuring that practices crucial to the relations of production can be undertaken at all or can be undertaken in more situations than otherwise. For instance, in capitalism, the process of trade is bolstered by laws regulating trade and providing recourse in the case of fraud. These allow trade in situations where people would otherwise have been too suspicious of their trading partners. This effect on the relations will ultimately impact the forces of production. By allowing the relations of production to function more smoothly, superstructures perform the functional role of allowing relations to develop the forces of production more easily. The expansion of trade, for instance, enables greater specialization of producers allowing developments in machinery, tools and practices which are more specialized and more productive. In relation to extra labor therefore, these superstructural elements can be selected for due to their ability to promote indirectly the development of the forces of production, or their ability to extort more labor out of laborers, thereby increasing the amount and productivity of extra labor for the reasons mentioned above.[179]

[179] Plekhanov briefly makes a very similar selectionist argument vis-à-vis the superstructure. Plekhanov, 1947, pp. 149-150.

However, superstructures also perform a second role of providing stability in class societies. Police forces help maintain order by repressing those who might threaten such stability or using the threat of repression to keep down dissent. Religious strictures, ideologies, laws, etc. discourage people from challenging the ruling classes and from thereby threatening the stability of a society. This is a necessary role for superstructures. Were this role not performed at all, the relations of production would not obtain because class hierarchies and labor coercion could not be maintained. Unlike the first function of superstructures, providing stability does not foster the development of the forces of production. It might be necessary to devote more resources to labor or social discipline when the forces are developed in a way that allows greater working time or intensity, but this is not the same as fostering the further development of the forces of production. Rather, stability is something that must be maintained, sometimes at additional or lesser cost when the level of development of the forces of production changes. It is a necessity for the very process of production itself but does not play a role in promoting the further development of the productive forces. In many analyses, it can simply be assumed to obtain, but in the analysis of extra labor it must be considered, as more efficient means of granting stability can increase total available extra labor.

These two roles, providing efficient functioning and providing stability, are not necessarily always distinct. Sometimes the same phenomenon may promote both. A religious ideology which promises reward for hard work in the afterlife, for example, would perform both functions. It encourages greater productivity with the promise of rewards after death and discourages revolt by providing a hope for salvation in the afterlife. However, they are nonetheless two distinct roles with two distinct consequences. Greater efficiency-promoting superstructures play a direct role in the promotion of extra labor. If labor is more productive, or if the process of production is in some other way made more efficient, this directly increases extra labor. Stability granting superstructures on the other hand simply ensure stability. Their non-provision entails unrest, and in the worst cases total collapse. Since the labor put towards stability-granting superstructures is labor that cannot be put towards competitive or imitative pursuits, reduction of the costs of stability should allow an increase

in extra labor. We should therefore expect competition and imitation to decrease the costs of stability, all other things being equal. At the same level of development of the forces of production, the society with more cost-efficient superstructures will have an extra labor advantage over those that do not.[180]

## 4) Extra Labor and the Primacy of the Forces of Production

Extra labor can, therefore, be increased by developing the forces of production, by increasing work time and intensity and by decreasing the costs of stability. This would seem on the face of it to undermine the primacy of the forces of production. If societal selection relies on extra labor, and extra labor is increased in more ways than simply developing the forces of production, then societal selection does not seem to entail that only the forces of production will develop, but rather that the forces of production will develop, working time and intensity will be increased, *and* that costs of stability will be reduced. It may seem strange that the addition of two other

[180] Ideology, in particular, is a superstructural element which some authors have argued develops in a Darwinian (or Lamarkian) way. Rosen and Wolff, 1996, pp. 239-241; and Cohen, 2000, p. 291. McMurtry also argues that there is a selective process that underlies the primacy of the economic structure over the superstructure. However, he argues that there is no means to determine criteria for when a superstructural or ideological phenomenon might be selected for (or at least that Marx does not offer one and that it is not necessary). McMurtry, 1978, pp. 188-192. However, these tend to concern the extent to which a superstructure adapts and is appropriate to the economic structure, whereas I am discussing to what extent a superstructure helps or hinders a society in societal competition. The correspondence of a superstructure to its economic structure will be relevant. Non-correspondence will undermine productivity, increase costs of stability, or both. As such, non-correspondence can be determined by analyzing whether a particular superstructural element will undermine productivity or increase costs of stability. However, determining whether or not any superstructure will correspond in any particular societal context will require, as McMurtry notes, an analysis of the particular material conditions which apply in this society. To be clear, by material conditions I mean the level of development of the forces, the state of the relations of production, and the geographical context of a society. The first two should in most cases be the most important factors. However, geographical factors may occasionally play a role. For instance, the superstructures allowing the most efficient exploitation of rice and wheat might be different, which is arguably the intuition behind the so-called “Asiatic” mode of production. The balance of class forces and class struggle may also be relevant when determining the effect of a superstructure on stability. Ultimately, however, the “fitness” of superstructures is a function of its effects on productivity and costs of stability.

consequences of societal selection should be an issue here. After all, the development of the forces of production is still a means of maximizing extra labor and so societal selection will predict that forces of production develop. And indeed, were the analysis to stop here, the forces of production would play a major role in history. However, if left like this, the primacy of the forces of production over the relations of production would be weakened by the fact that other elements appear to share its primacy.

The problem is that there is no imperative for the forces of production to develop at all, if the same could be achieved through other means. If a set of relations of production finds it more expedient to increase working time and intensity, or to decrease the costs of stability, then they may do so instead of developing the forces of production. This parallels the point that Robert Brenner makes in discussing pre-capitalist relations.[181] A feudal lord has a much greater incentive to attempt to squeeze more labor out of the peasanty than to develop the forces of production.

This problem becomes most acute when relations of production begin to fetter the forces of production. If an old set of relations of production can, by other means, keep up with a new set of relations competitively without keeping up with its development of the forces of production, then it might be able to hold on indefinitely in the face of a new set of relations of production. There would therefore not be any tendency for new relations of production to spread.

However, while forces of production, working time/intensity, and costs of stability all contribute to extra labor, there is a fundamental difference between the contribution of the forces of production and that of the latter two. Any increase in the forces of production will increase extra labor, and this will be true so long as the forces of production are able to develop at all. However, as I will argue below, increasing working time and intensity and decreasing the costs of stability will have a ceiling to the amount that they contribute to extra labor. It may vary at different levels of development of the forces of production and in different relations of production, but this maximum

[181] Brenner, 1986 pp. 30-32; Brenner 2007, p.70.

will eventually be reached, or at least approximated, at which point any further increase in extra labor can only be achieved by developing the forces of production.

This responds to the problem Brenner poses concerning the lack of incentives for development of the forces of production in pre-capitalist societies. Feudal lords may prefer to increase the working time and intensity of their peasant laborers, but they will eventually reach a point when they cannot do so any further without decreasing extra labor and becoming less competitive. Once they reach or approximate this point, those who develop the forces of production will be able to have an extra labor advantage. This does not necessarily mean that they are incentivized to develop the forces. It simply means that those societies that do further develop them, whatever their reasons might be, will have an extra labor advantage.

This is even more likely when relations are fettering the development of the forces of production. Relations of production fetter the forces of production well after their original adoption and, therefore, there will have been plenty of time for societies to reach or approximate the optimal working time, working intensity and cost of stability. They will not, therefore, have much, if any, means of gaining greater extra labor by any of these methods and so will not be able to remain competitive with a society which is able to develop the forces of production further.

*Limits of Work Length, Intensity and Costs of Stability*

Why then are work length, intensity, and the costs of stability limited?

To begin with, rather straightforwardly, all three have some inherent limits which they cannot exceed. Work length and intensity are limited by the fact that human beings are only physically capable of sustaining a limited intensity and duration of work, and there are only so many

hours in a day.[182] The costs of stability on the other hand cannot be reduced below zero. However, in practice these limits are never reached. This is because all three of these means of increasing extra labor involve tradeoffs.

Generally, the more salient factor in analyzing workday length and intensity are the social limitations imposed on them. Or, to put it another way, working time and intensity are limited by the conditions of class struggle (which determine these social limitations). Greater working time or intensity usually causes dissatisfaction among the immediate producers of the era, meaning that there is some form of tradeoff between these forms of squeezing more labor out of laborers and the amount of labor required to maintain stability. Requiring laborers to work longer may necessitate increasing policing to contain or dissuade revolts or strikes.[183] If this additional policing requires greater quantities of labor than would be saved by the increased working day then it does not increase the amount of labor available for competition. Similarly, if an increased working day leads to less labor performed due to strikes or other work stoppages caused by the increased hours then this would also not be competitively efficient. As such, there should be some length and intensity of

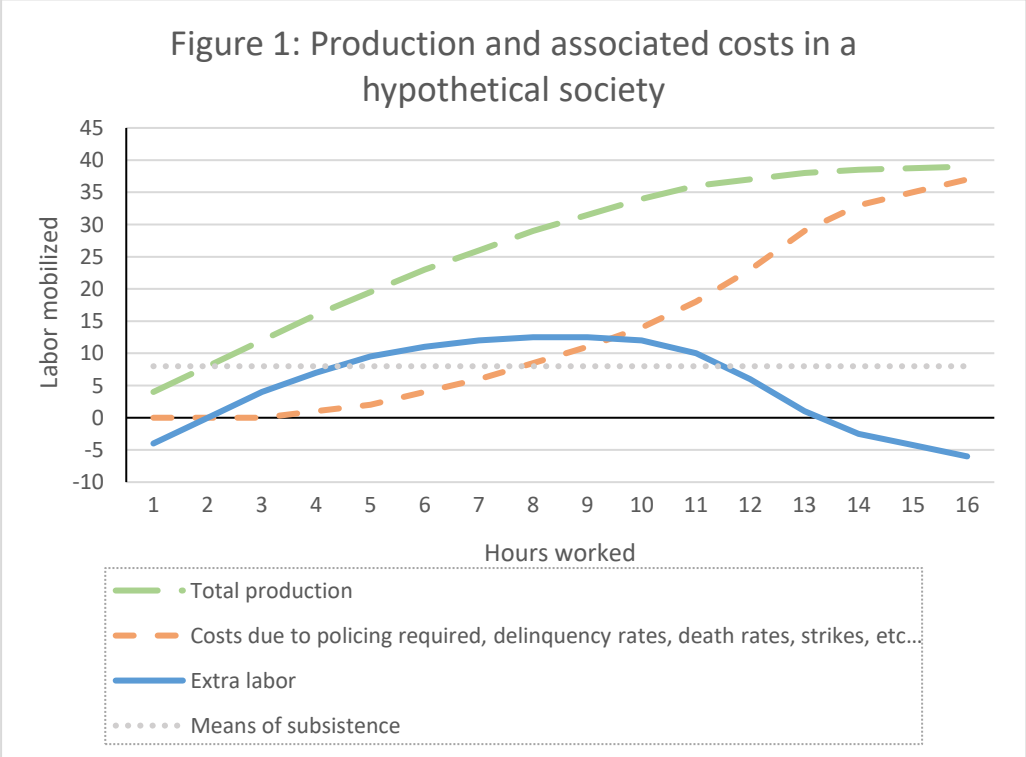
[182] And, as Marx notes, there is a tradeoff between work time and intensity. "Hence a point must inevitably be reached where extension of the working day and intensification of labor become mutually exclusive so that the lengthening of the working day becomes compatible only with a lower degree of intensity, and inversely, a higher degree of intensity only with a shortening of the working day". Marx, 1996, p. 412. At a certain point the work time/intensity reaches the physical limits of laborers, meaning that the only way to increase one without exceeding these limits is by decreasing the other. Indeed, before they reach these physical limits they will almost certainly reach cultural limits as to what constitutes an acceptable length and intensity of work, at which point there will be a similar tradeoff, where longer hours might be accepted for less intense work, or more intense work might be accepted for shorter hours. As such, work time and intensity can be interchanged which is why I treat them together in this chapter.

[183] This is not a certainty, however. For instance, it is possible that increased working days might in fact decrease unrest. If you have to be working longer hours you may have less time to organize. Additionally, ideology can lay the groundwork for making the introduction of longer hours less costly, and shifts in ideology might make it possible to have laborers work longer than they had previously. It is not generally something that can be immediately deployed as a response. Ideology can sometimes be intentionally created using tools such as propaganda. But even in these cases such creation takes time.

Nevertheless, increased working time will generally come with some form of negative tradeoff. Ideology can lessen the impact, but it will generally not be able to pacify dissent entirely. There will always be some who do not follow the ideology in question and the increased working day may possibly even cause some who once accepted it to challenge it. And even in cases when an increased working day may decrease unrest, it will bear other costs, such as increased exhaustion and strain, leading to lower productivity, which may outweigh the gains for decreased unrest.

This is not to say that the theory is committed to there always being an extra labor cost to increased working hours. Rather, it simply claims that at a certain point the costs will eventually outweigh the benefits.

the workday at which any increase would be accompanied by a greater labor loss due to the social fallout. Figure 1 illustrates this phenomenon in a fictitious society where the most societally productive working day is approximately 8-9 hours. A similar graph could be drawn for degrees of intensity of work. The numbers in this graph are made up and are meant merely to be illustrative, but the general shape of the graph should stay roughly the same throughout class societies. Specifically, there are three elements of this graph that should be present in all class societies. The first is that total production will not increase in a linear fashion as longer hours will, at some point, mean decreased hourly productivity as laborers become sleep deprived or reach other physical limitations. Second is that at a certain point, the social costs of the longer working hours will start to catch up to the amount produced. And third, there will be some length of the working day that will allow for the greatest amount of extra labor corresponding to when the social costs of longer hours begin to increase at a greater rate than the production that these longer hours allow. This is because the productive capacity that can be put towards competitive pursuits (extra labor) is equal to total production minus the means of subsistence and costs of stability.



Costs of stability, similarly, involve a tradeoff. Insufficient provision for stability can lead to new costs. If a police force is insufficient to contain the riots that come about as a result of the prevailing mode of production, additional social costs will take the form of destroyed property. As such, not all reductions of costs of superstructures will be efficient. If such a reduction of costs comes with a reduction in the length or intensity of the working day which outweighs it, or with other costs or risks which outweigh it, then this is an inefficient reduction from the standpoint of extra labor. There will be a tendency to decrease the costs to achieve the same ends, but if the ends change, if technical development requires greater repression of labor than before, then the costs of stability can increase. Imagine if a new machine that is particularly aggravating to use were to be introduced into processes of production on a mass scale, and this caused more people to desire to sabotage the process of production, overthrow the government, oppose the prevailing relations of production, or other things along those lines. Imagine further that these desires could be repressed, diverted, or in some other way neutralized by an increase in the police force. This would increase the costs of the stability but, so long as the increased production were enough to counterbalance this, there would be an increase in extra labor. If not, then this machine would likely not be widely adopted and the next increase in the forces of production would need to come from somewhere else.

Therefore, for work time and intensity, and the costs of stability, there is a tradeoff that entails that there is a maximal amount that they can increase extra labor. Eventually they reach a point at which increasing (or decreasing in the case of superstructural costs) them entails greater labor costs than it provides. However, there is no corresponding tradeoff for forces of production. Extra labor can increase in a linear manner along with the forces of production. This is because there are no inherent costs to extra labor from increases in the forces of production. Specific forces of production may come with extra costs, but greater development in itself does not. As such, selection for greater extra labor will ultimately mean selection for greater development of the forces of production. Work time, intensity and costs of stability will be selected for, but only up to the point

where they allow the greatest extra labor possible. Once this point has been reached, or closely enough approached, societal selection will select for greater development of the forces of production exclusively.

*Forces, Relations, and Extra Labor Maxima*

The extra labor maximum that work time and intensity and costs of stability tend towards is not entirely a constant. Instead, these maxima will be different in different contexts. Most importantly, they will vary based on the level of development of the forces of production and the prevailing relations of production. For instance, different tools and forms of organization of work allow for different lengths of the working day and different intensities of labor. The introduction of machinery, for instance, typically makes work less physically taxing thus enabling increases in the working day and intensity of work impossible for handicraft.[184] In fact, it is entirely possible for new forces of production to be adopted precisely in order to allow greater working time and intensity than was previously possible and to increase productivity in that way.[185] As such, the working time and intensity at which extra labor reaches its maximum, and therefore the working time and intensity which societal selection predicts will tend to become dominant, will be dependent on the level of development of the forces of production.

The costs of stability, similarly, can vary with different forces of production. On the one hand, the development of the forces of production changes the ability of states to control, surveil, and repress, and of dominant ideologies to spread and be reinforced. On the other hand, it also

[184] Marx and Engels, 1996, pp. 406-407 and p. 415.
[185] Marglin (1974, pp. 93-95) argues for example that early capitalist manufacture did not represent an increase in efficiency or productivity per hour, it did however put the worker under the direct control of the capitalist in the work process, allowing the latter to force the former to work longer hours and therefore produce more in total.

changes the capacities for movements of dissatisfaction to organize and for ideas contrary to the prevailing ideologies to be disseminated. The rise of the internet, for instance, offers governments new means of surveilling citizens but also provides a new means for social movements to organize.[186]

As such, the forces of production play a part in determining the maximal amounts of extra labor that can be freed up or mobilized via work time and intensity and costs of stability. Their explanatory primacy over the relations of production is thereby reinforced. Societal selection not only selects for forces of production once work time and intensity and costs of stability have approached the maximal amount of labor they can mobilize in a given context. This maximal amount is also dependent on the level of development of the forces of production. This should, as we shall see presently, not be overstated, but it is worth noting nonetheless.

However, the determination of these maxima also poses a problem for the primacy of the forces of production. Namely the fact that relations of production also play a role in determining these maxima. Feudalism might require a heavy presence of religion, to enshrine hereditary hierarchies in religious authority, in a way that modern capitalism, which has less rigid hierarchies, might not. This would not be to say that capitalism does not make use of religion, but rather that it plays a less pivotal role in modern capitalist ideology. Feudalism would therefore require a much greater investment of resources, labor, etc. in religion than capitalism.[187] In many cases adoption of the stability-granting practices of other relations of production will not necessarily be helpful as they will not be as suited to a different set of relations of production. This means that there is no reason that we should expect a transhistorical tendency for the costs of stability to decrease. “Primitive

[186] Whether the internet has been, overall, beneficial or detrimental to social movements has been the source of much debate. See, for instance, Morozov, 2011; Lyon, Haggerty, and Ball 2012 (especially section 3.5); and Greenfield, 2017.

[187] For a more in-depth discussion of the many ways in which relations of production are determinative of their own repressive tools and requirements see Rusche and Kirshheimer, 2017. The changes Foucault notes from an emphasis on punishment to an emphasis on discipline throughout the era in which capitalism was developing could also be seen an account of the modes of repression changing due to the changing requirements of the relations of production. Foucault, 1991.

communist" societies required less labor to be used for superstructural elements than did slave societies, for instance.[188] The costs of stability for a more productive set of relations of production might well be higher than those of a set of relations of production that allows lesser developed forces of production.

This poses a problem because it appears to involve the relations of production as a factor in the process that I am using to justify the primacy of the forces of production. If relations play a determinative role in extra labor, then it would seem that extra labor cannot be used to justify the primacy of forces over relations. Societal selection, when selecting for extra labor, is also selecting for relations of production that maximize extra labor by allowing longer possible working days, more intensive work and lower stability costs. Can this be reconciled with the idea that societal selection explains the primacy of forces of production over relations of production?

This problem is best considered by envisioning how exactly the primacy of the forces of production could be counteracted by this influence. This would involve a situation in which a society with one set of relations is fettering the forces of production but is able to stave off a competitor society which can further develop the forces of production due to being able to mobilize greater extra labor through longer working hours or decreased costs of stability. If the upstart society is unable to match both of these, then the situation is at best undecided. However, it will not remain undecided long. If the upstart is not eliminated, it will continue to increase its development of the forces of production, and therefore the extra labor it is able to mobilize will increase. The incumbent society, however, will be unable to increase its own extra labor, given the fact that they have close to the maximum amount of extra labor they can derive from their advantage with regards to work time, work intensity, or costs of stability. It cannot increase this advantage to keep up with the increasing advantage the upstart society is gaining due to its increased development of the forces of

[188] Scott, 2017, p. 29. Scott is of course discussing the emergence of states, rather than of slave relations of production. However, these do map on quite well to each other, states being necessary to enforce slave relations.

production. As such the upstart society will, as time passes, achieve a greater and greater extra-labor advantage over its rival, and therefore its relations will eventually spread at the expense of those of its rival. The primacy of the forces of production therefore still holds in these circumstances.

Of course, another situation is possible. It is possible that the upstart society is unable to survive long enough to develop the forces of production to the point of achieving this advantage. In this situation, the incumbent society will indeed remain dominant, thanks to its extra labor advantage. However, due to its fettering of the forces of production, it remains vulnerable to any upstart that can survive long enough to gain an extra labor advantage due to its greater ability to develop the forces of production. This survival might be achieved through luck, other factors specific to the society in question, and/or through adopting relations which do not fetter the forces of production but also do not have the disadvantages in terms of labor time and intensity, and costs of stability (as the upstart in the original example did).[189]

What this example illustrates is the same point that was mentioned above: once other factors achieve or approach the maximal amount of extra labor they are able to, selection for extra labor becomes selection for greater developed forces. Increasing the development of the forces of production consistently provides an extra labor advantage in a way that no other factor does. As such, while the picture is somewhat complicated by the inclusion of work time/intensity and the costs of stability, ultimately selection for greater extra labor entails selection for greater developed forces of production.

[189] Fettering, and the sorts of factors that might allow upstarts to survive, will both be discussed in more depth in Chapter 4.

*Societal Variation*

So far, I have been considering societies in a rather abstract way. However, all societies develop within their own historical and geographic contexts. These contexts may give their society a competitive advantage or disadvantage that is independent from the development of the forces of production.

The question of geographical advantage is perhaps most famously put forward by Jared Diamond in *Guns, Germs and Steel*.[190] In many ways, Diamond's project is quite amicable to historical materialism. I don't have space to go into it here, but Alan Carling and Paul Nolan discuss the affinity between Diamond's work and historical materialism, and particularly a selectionist view of historical materialism, in depth in their review of *Guns, Germs, and Steel*.[191] For now suffice it to say that there is a lot of commonality to be found. Important here is that Diamond's work does pose the problem that geography provides advantages to some societies over others. For instance, certain societies may be in possession of animal life, plant life, or resources which are crucial to certain developments of the forces of production, meaning such developments may be impossible for those lacking such resources at certain periods of time.[192]

The initial consequence of this is that not all societies may be able to develop the forces of production at the same time or at the same rate. The playing field is not level and who develops new forces of production may not always be entirely left up to chance but may instead be conditioned by geographical factors.[193] This does not directly challenge the primacy of the forces of production,

[190] Diamond, 2017.
[191] Carling and Nolan, 2000. See also Diamond, 2017, pp. 34-35, and p. 37, the latter of which notes the importance of imitation in the spread of technology.
[192] Diamond, 2017, pp. 147-148, p. 150, p. 162, and p. 168; and Diamond, 2002, p. 702.
[193] While, from a certain point of view, the geographical advantages or disadvantages of a society may also be argued to be up to chance, there is an important distinction. The chance factors that play out in military and economic conflict, and imitation, do not have any inherent reason to consistently favor one society over another. However, a society which happens to have geographic advantages will be consistently favored.

since forces of production do ultimately still hold the key to competitive advantage, even if they may be geographically conditioned. Nor does it challenge societal selection directly, since societal selection is agnostic about the actual process of emergence of forces of production, predicting only that forces of production, once developed, will have a tendency to spread, a conclusion that Diamond's work supports. But this view has implications beyond just the emergence of forces of production. It may also be the case that forces of production's spread may at times be geographically limited. The spread of crops, vital to agricultural production, for instance, may be limited to certain geographic areas for a time. The spread of these crops, and thus the possibility to develop agricultural production, may be limited until either local crops are developed, or foreign crops are bred to thrive in new climactic or geographic conditions. Therefore, it is possible that, at times, the spread of greater developed forces of production may be limited by geographic factors.[194]

Additionally, historical, cultural, and ethnic differences, can significantly impact a society.[195] For our purposes it is worth noting that stability may be easier or more difficult to achieve in some societies and time periods than others due to these differences. Furthermore, the actual effect of many of these factors is generally quite unclear. For example, a society in which racial groups are treated differently might require less to maintain stability due to antagonisms being redirected to other racial groups as opposed to ruling elites.[196] However, it might also require more labor to maintain stability due to this division possibly increasing the amount of violent conflict to be quelled. As such, there are factors other than those discussed so far that play a role in extra labor.

One point to be made about these factors is that they are not all clearly exogenous. The importance attached to racial difference operates on a societal level. As such, so long as it plays a

[194] As Nolan argues, differential geography may also be able to influence the extent to which a society is capable of developing the forces of production in the first place. Nolan, 2002b, pp. 166-167.
[195] Cedric Robison identifies some of these factors as major omissions in Marx's scholarship. Robinson, 2000, p. xxix. Whether or not this is fair to him, it is certainly the case that these are important factors that warrant consideration.
[196] Or might be able to use it to decrease the amount laborers will accept as their means of subsistence, as DuBois argues was the case in the United States. DuBois, 1971, pp. 700-701; See also Roediger, 2007.

role in determining extra labor, it should be subject to the selective pressures of societal selection. If societies that place an importance on racial or ethnic difference are outcompeting those that do not, then others may end up imitating them. And if these societies do not have similar racial divisions to view in this new framework, it is almost always possible to find some way to divide people in a society. This will often involve finding a different racial or ethnic group to claim as inferior or simply attaching normative judgements to already existing physical variations within a population. The ability to map on these divides in other places, however, does not fully resolve the conceptual problem. The social results of such divisions are likely to be different, and may not always be "beneficial" (in the sense of increasing extra labor), across different societies. A racial hierarchy or division may be helpful to one society's competitiveness and harmful to another, depending on the circumstances and histories of each. In one society, it might divide the class of immediate producers, making dissent more difficult. In another, it might cause the society to be chronically unstable as ethnic, racial, religious, or national divides translate into anything from unrest to civil war. As such, given the fact that the competitive benefits of social division are potentially societally specific, it is possible that some societies may have an extra labor advantage that cannot be selected for.

What the admission of societal variation entails is that in different societies, what constitutes an efficient superstructure may vary. One may rely more on race repression (due to increased racial conflict), and less on labor repression (due to the division of the labor movement along racial lines) than another. It may be possible therefore that a set of relations of production may have various superstructural arrangements that provide stability at a minimum cost depending on the situation of the society in question. Additionally, it may be possible for there to be multiple ways of achieving roughly the same low stability costs in two otherwise nearly identical societies. This latter consideration however simply amounts to saying that it is possible that a set of relations of production predicts that societies will tend towards one of multiple superstructural setups instead of tending towards just one.

Both geographical variation and socio-historical variation required the addition of a caveat. It is possible that at certain times the spread of the forces of production will be geographically limited or slowed and it is possible that certain societies may be able to achieve stability more cheaply than others. But both pose the greater challenge that societally specific factors may play a greater role in societal competition than the forces of production do. The forces of production, it is suggested, may not have primacy if their effect is overwhelmed by societal advantages and disadvantages.

However, this challenge misconstrues the way selection works. Some societies may possess advantages or disadvantages, but forces of production will still be selected for because they will always provide an advantage. Perhaps one society will develop the forces of production to overcome its natural disadvantages. Perhaps another will use them to defeat or compete with others who share similar advantages. A process of selection does not require uniformity of those within which selection is occurring. Even if certain elements (exogenously) disadvantage some societies relative to others, all of them will tend to maximize extra labor within their given circumstances. Those that find themselves in easier circumstances may not find it as necessary or pressing to innovate or imitate, but if they do not at all then they may find themselves at a disadvantage relative to those whose circumstances forced them to find more efficient ways of doing things. Greater developed forces of production will still consistently allow greater extra labor, even if other factors may allow particular societies to mobilize greater extra labor than others given their contexts.

As the present section of this chapter has argued, selection for extra labor ultimately constitutes selection for greater developed forces of production. The level of development of the

forces of production determines the productivity of extra labor as well as the amount of labor required to produce the means of subsistence. The fact that stability-granting superstructures are a component of extra labor complicates the picture somewhat, but does not significantly undermine the fact that the only consistent way to increase extra labor is to develop the forces of production. Greater developed forces of production directly decrease the costs of stability due to the fact that they decrease the amount of labor required to sustain those who work in stability-granting institutions. More importantly however, the extent to which extra labor can be obtained through the reduction of the costs of stability is limited. These limitations are partially inherent and partially due to the fact that what functions as an efficient superstructure can be different in different sets of relations of production. The latter consideration entails that far from posing a problem to the primacy of the forces of production, competition for more efficient superstructures helps cement it. The superstructural arrangement or arrangements which allow for stability at the lowest cost are determined by relations of production which themselves are determined by forces of production.

Extra labor, therefore, provides societal selection with an analogue to natural selection's fitness, which is derivable from the development of the forces of production and increases along with the forces of production. Extra labor is what allows societies to succeed competitively or be the subject of imitation. Societies with greater extra labor can devote more resources to such pursuits giving them an advantage in pursuing them. This advantage is not always decisive, it is possible for other factors to change outcomes, but neither does it need to be in order to establish a strong tendency.

This chapter and the previous one concerned development of the forces of production within a set of relations of production. Imitation and extra labor allow for a strong and relatively rapid tendency for the greater developed forces of production to spread at the expense of less developed forces. It is a tendency, furthermore, that we should expect to see increase in speed as

societies come into contact with increasing numbers of societies and when new competitive mechanisms (such as capitalist market competition) emerge. And indeed, this is what we have seen with the rise of globalization and capitalism. I believe, and have attempted to show, that societal selection provides a plausible model of the development of the forces of production throughout history.

# Chapter 4:

# Relations of Production: Compatibility, Contradiction, and Optimality

Providing an account of the primacy of the forces of production requires considering their relationship with the relations of production. Thus far, I have only considered the ways in which societal selection might be able to uphold the fact that the forces of production have a tendency to develop. However, to show that these forces have primacy over the relations of production requires additional premises. Levine and Wright hold that Cohen's argument for the primacy of the forces of production consists in defending five theses.[197] These are:

1) The Compatibility Thesis: that relations of production are compatible with a limited set of levels of development of the forces of production and that a given level of development of the forces of production is compatible with a limited set of relations of production.

2) The Development Thesis: that the forces of production have a tendency to develop.

3) The Contradiction Thesis: that, given 1) and 2), forces of production will eventually develop to the point of no longer being compatible with the prevailing relations.

4) The Transformation Thesis: that such conflicts will be resolved in favor of the forces of production, entailing the emergence of new relations.

5) The Optimality Thesis: that the relations of production that emerge must be optimal to the further development of the forces of production.

I do not believe that the final of these, the Optimality Thesis, constitutes a necessary thesis of historical materialism, as I argue later in this chapter. However, I find Levine and Wright's theses

[197] Levine and Wright, 1980.

to be otherwise very helpful in delineating what is needed to defend the primacy of the forces of production. Therefore, I use their theses to help organize the content of this chapter.

Two of these theses are discussed in other chapters. Chapters 2 and 3 have focused on the development thesis since, as we shall see, the mechanisms underlying the development thesis will be key for most of the other theses. Since it was discussed previously, the Development Thesis will not be discussed in this chapter. The transformation thesis will be discussed somewhat while discussing the contradiction thesis later in this chapter, since the theses are not entirely separable. However, Chapters 5 and 6 will allow more detailed examination of aspects of the transformation thesis. Chapter 5 examines how the transition to socialism might work, providing an example of how the transformation thesis might be defended. And chapter 6 considers how the question of class, posed as key to transition between relations of production by political Marxists, might be integrated into the analysis.[198] That the development and transformation theses (2 and 4) require a more detailed discussion should be unsurprising, since they tend to be the theses which have been considered and contested most in critiques of Cohen.[199] Additionally, together these two theses would almost be enough to defend the primacy thesis on their own. If the forces of production have a tendency to develop and conflicts between relations of production and forces of production are ultimately resolved in favor of the forces of production, then this establishes a form of primacy. These two theses, if true, entail that the relations of production will be forced to change when they come into contradiction with the inherent drive of the forces of production to advance. This gives the forces of production causal primacy over the relations of production since these two theses entail that ultimately the development of the forces of production determine, or at least strongly influence, the broad course of history. If the relations of production come into conflict with this development, if they begin to fetter it, then the latter will be replaced with relations which better

[198] Brenner, 1978; Brenner, 1986; and Wood, 2002.
[199] J. Cohen, 1982, pp. 256-257; Elster, 1980, p. 124; Gottleib, 1985, pp. 10-11; Carling, 1993, pp. 38-39; Nolan, 2006, pp. 162-163; and Laibman, 2019, p. 8.

suit the current state of the forces of production. The relations are functionally explained by the forces because once they cease to perform their function of permitting the further development of the forces of production, they eventually become replaced by relations that do perform this function.[200]

However, the importance of this primacy is conditioned by the other theses. Without the compatibility thesis and the contradiction thesis, it is entirely possible for the forces and relations never to come into conflicts where the primacy of the forces would assert itself. If relations of production were compatible with all levels of development of the forces of production, or if it were the case that the relations never came into contradiction with the forces, then each might well be able to obey its own laws of motion without either being conditioned by the other.[201] And the optimality thesis, if true, would entail that the forces of production condition the relations of production to the point of selecting the optimal relations to permit their further development, as opposed to selecting for relations which merely permit them to further develop. Therefore, by addressing the compatibility, contradiction, and optimality theses (1, 3, and 5), this chapter will be considering how strongly intertwined forces and relations actually are.

[200] To an extent, the combination of the development thesis and any of the three other theses gives an approximate argument for the primacy of the forces of production. Cohen, for instance, argues that the primacy of the forces of production can be established using a combination of the development thesis and the compatibility thesis. Cohen, 2000, p. 158. This establishes that forces and relations will eventually come into conflict. However, as may critics have pointed out (see previous footnote) this does not clearly show that this conflict will be resolved in favor of the forces of production. Laibman, similarly to Cohen, argues that the "development principle" (which is equivalent to what we've been calling the development thesis) captures the main intent of the primacy thesis if combined with the "correspondence principle" (which may, roughly, be considered equivalent to the compatibility thesis). Laibman, 2008, p. 20. Therefore, Laibman's argument for change in relations of production has the same structure as that of Cohen. The main difference resides in the way they justify these theses. Cohen appeals to a transhistorical tendency for the forces of production to develop for the first thesis and appeals to historical example for the second. Laibman argues that both need to be shown to be true for each mode of production. Laibman, 2008, pp. 22-23, 98, 100; and Laibman, 2019, pp. 11-12.

[201] The compatibility thesis and the contradiction thesis are in effect describing two elements of the same process. The compatibility thesis notes that there can be an incompatibility between forces and relations and the contradiction thesis is a statement of how this incompatibility manifests itself. A compatibility thesis and a development thesis do, as mentioned above, entail a contradiction thesis. The content of this thesis is therefore not to establish that a contradiction occurs, but rather to establish what form the contradiction takes and what the contradiction consists of.

## Thesis 1: The Compatibility Thesis

*Correspondence Between Forces and Relations of Production*

Cohen discusses the correspondence of relations to forces of production by considering when forces and relations might be incompatible.[202] Here, I follow Levine and Wright in taking Cohen to be claiming that "forces and relations of production are compatible whenever the relations allow for further development […] of the productive forces."[203] However, for reasons which will become clearer in my discussion of fettering later in this chapter, I believe that this definition makes incompatibility nearly impossible and not helpful for determining when a contradiction might occur. The main reason for this is that it is difficult to imagine a situation in which a set of relations of production would allow no development of the forces of production whatsoever. Rather I take relations of production to be compatible with forces of production when the former are not fettering the latter.[204] As I will discuss further below, by fettering the development of the forces of

[202] Cohen, 2000, p. 158. Of course, although I am focusing on Cohen's account, he isn't the only one to discuss this question. The correspondence between forces and relations of production is a key concept in most Marxist scholarship concerning historical materialism. For many, they are not even entirely separable entities. Each is conditioned by the other to form a mode of production and cannot be adequately defined separately (see for instance Althusser and Balibar, 2015, pp. 246-248, 338, 411-412; and Hindess and Hirst, 2018, pp. 9-11, Lukacs, 1968, pp. 10-13). However, as key as this correspondence is, it is rarely the object of a sustained theoretical defense. For those who do attempt to defend it, correspondence is typically argued for either through appeals to historical or theoretical example, or to the notion, drawn from Marx, that life activity stems from productive activity (see for example Cohen, 2000, pp. 136-137, and 158; Harnecker, 1974, pp. 35-36; Laibman, 2019, pp. 10-11; and Harman, 1986). Neither of these appeals constitutes a comprehensive attempt to defend this correspondence.

[203] Levine and Wright, 1980, p. 52.

[204] While I believe that this is the way compatibility needs to be understood in light of the discussion of fettering below, I also believe that this is likely what Cohen (and Marx) had in mind with the term compatibility. Most tellingly, the first passage of the *Communist Manifesto* which Cohen (2000) cites on p. 145 seems to clearly and straightforwardly take compatibility in this sense. "[I]n one word, the feudal relations became no longer compatible with the already developed productive forces; they became so many fetters. They had to be burst asunder; they were burst asunder."

production I mean holding it back relative to what another accessible alternative could achieve. Crucially for the development of a contradiction and therefore a transformation, this means that forces and relations of production are incompatible when the relations are fettering the forces of production. It is this incompatibility between forces and relations which plays a role in transitions between relations of production, which is why this section will be more concerned with compatibility and incompatibility than with correspondence. However, the change from correspondence to compatibility does not change the fact that even for Cohen this incompatibility is defended entirely using examples.

Cohen and others may be content with simply appealing to historical examples because a full theoretical defense is not required. Even Levine and Wright note that the first claim of the compatibility thesis, that a given level of development of the forces of production is compatible with a limited set of relations, is uncontroversial. "It is easy to posit a type of relation of production which would be incompatible with any level of specified forces of production, and the thesis is supported so long as such examples are forthcoming."[205] At least for this first claim, therefore, it may well be that its defense consists in noting that there are many cases in which forces are compatible with a limited set of relations, as the compatibility thesis predicts, and that there have not yet been any examples of levels of development of the forces of production which are compatible with all sets of relations of production.[206] And indeed, if the thesis is able to predict a state of affairs, is vulnerable to evidence, and yet remains unchallenged this is a powerful defense of the thesis.[207] In the case of

[205] Levine and Wright, 1980, p. 60.

[206] Cohen for instance uses the example of computers being incompatible with slavery: "Slavery, for example, could not be the general condition of producers in a society of computer technology, if only because the degree of culture needed in laborers who can work that technology would lead them to revolt, successfully, against slave status." Cohen, 2000, p. 158. This is discussed further in Cohen, 2000, pp. 191-192. Similarly, he notes that capitalism is incompatible with low levels of development of the productive forces (which is equivalent to saying that low levels of development of the productive forces are incompatible with capitalism). Cohen, 2000, pp. 193-194.

[207] I am resisting using the word "falsifiable" since the viability of falsification has quite convincingly been called into question. See Duhem, 1962, Chapter 6; and Quine, 1953, Chapter 2. However, it is still the case that scientific theories need to be clear as to what evidence would pose a challenge to them, and must have a vehicle for responding to such evidence in ways that entail additional predictions. Popper, 1972, p. 202; and Lakatos, 1978, pp. 33, 112, and 142-143. Presumably, in this case, were contrary evidence to emerge, the

this first part of the compatibility thesis all that would need to be shown is that a given level of development of the forces of production is compatible with all historically existing relations of production ("primitive communism", slavery, feudalism, and capitalism) to pose a major challenge to this thesis. Absent such a challenge, the acceptance of this principle seems reasonable.

As concerns the second statement of this principle, that a given set of relations of production is compatible with a limited range of forces of production, Levine and Wright do pose a problem. They argue that it is unclear in Cohen's account that capitalist relations of production would be incompatible with any amount of increase in the level of development of the forces of production.[208] This specific argument will be considered in more detail when discussing the transition to socialism in Chapter 5. I will not however be addressing it here because it is not, strictly speaking, a falsification of the claim as they presented it. After all, it is possible for capitalism to be compatible with an infinite range of future levels of development of the forces without being compatible with past ones. Indeed, I suspect Levine and Wright would agree that capitalism was impossible at some points in the past. If nothing else, I believe they would agree that a ruling class cannot exist without a surplus and that there were states of humanity in which communities did not produce a surplus.[209]

What Levine and Wright's critique does reveal, however, is that the statement taken strictly is not as strong as would be required to defend the contradiction thesis as they state it.[210] If a set of relations is compatible with all future levels of development of the forces of production, then there will be no future contradiction between forces of production and relations of production. Therefore,

predictions that could be made would concern some specific fact that would show that a set of relations was indeed incompatible with the level of development of the forces of production in question. Failing this, the thesis would have to be modified.

[208] Levine and Wright, 1980, p. 60.

[209] Marx and Engels, 1975b, pp. 32-33.

[210] Levine and Wright, 1980, p. 54.

it is not the case that this set of relations of production will come into contradiction with the forces of production after it has risen to dominance.

However, this formulation of the contradiction thesis appears too strong. It would indeed be problematic for Marxists if capitalism were compatible with all future levels of development of the forces of production. If this were the case, there would be no reason for a historical materialist analysis to expect that capitalism would ever end or that socialism would arise. But there is one set of relations which arguably is compatible with all levels of development of the forces of production which follow its emergence: communism.[211] And whether or not one believes that communism (or some other set of relations of production) might constitute the end of history, there is no clear reason to preclude that possibility in theory. This view of communism is still in line with the compatibility thesis, because communism is incompatible with most earlier levels of development of the forces of production (or possibly all, depending on whether one counts "primitive communism" as a form of communism).

Given this, the second portion of Levine and Wright's contradiction thesis can be defended in the same way that they defended the first portion of the contradiction thesis. It predicts that there will be no situations in which a level of development of the forces of production is compatible with all relations or where a set of relations will be compatible with all forces. And more specifically, in relation to history, it predicts that there will be no level of development of the forces of production at which all relations of production persisted, and no relations of production which persisted throughout history.[212] These are very modest predictions, to be sure, but that is merely evidence of the modesty of the contradiction thesis. The fact that these predictions do not appear to have any historical counterexamples (at least that I am aware of), though they are vulnerable to

[211] This is a possible interpretation of Marx's statement that bourgeois society is the last social formation with class antagonism and therefore the final stage in human "prehistory". Marx and Engels, 1987a, p. 264.
[212] I use the word "persist" here as a shorthand for being compatible, since a set of relations of production should be able to persist only so long as it is compatible with the level of development of the forces of production. Once it becomes incompatible, as we shall see below, it will begin to be replaced with a new set of relations.

evidence, is pretty strong evidence for the compatibility thesis. Of course, should counterexamples be proposed these would challenge the thesis and would require either a revision of the thesis or an explanation as to why the proposed counterexamples are not counterexamples at all.

Therefore, Levine and Wright's compatibility thesis does not defend their contradiction thesis as they claim. Nor should it, as their version of the contradiction thesis is in fact too strong as it precludes the possibility of a set of relations being compatible with all higher levels of development of the forces of production. I will therefore revise the contradiction thesis.

## Thesis 3: The Contradiction Thesis

### *Criteria for Contradiction*

Levine and Wright lay out the contradiction thesis as follows: "Given [the compatibility thesis and the development thesis], with sufficient time, the productive forces will develop to a point where they are no longer compatible with (i.e. contradict) the relations of production under which they had previously developed."[213] In light of the discussion above I will revise the contradiction thesis to the following: "Given the compatibility thesis and the contradiction thesis*, so long as a set of relations of production is incompatible with any higher level of development of the forces of production,* with sufficient time, the productive forces will develop to a point where they are no longer compatible with the relations of production under which they developed." This formulation avoids the implication that a set of relations of production that is compatible with all future levels of development of the forces of production is impossible.

[213] Levine and Wright, 1980, p. 54.

The first revision entails that in order to show that a specific set of relations of production will reach an end, there needs to be an analysis of the ways in which a set of relations will begin to become incompatible with the further development of the forces of production. There is no a priori guarantee that capitalism will come into contradiction with the development of the forces of production. This is why I dedicate the next chapter of this work to a discussion of the transition from capitalism to socialism.

The contradiction thesis appears to be a relatively straightforward consequence of the compatibility thesis and the development thesis. If the forces of production develop and the relations of production are compatible with a limited range of forces of production, then at least once in history there will be a moment when the forces of production are attempting to develop, but run up against the fact that the relations of production currently in existence are incompatible with further developed forces.[214] There is therefore going to be a conflict between the forces of production's tendency to develop and the relations of production's incapacity to admit further development of the forces of production.

However, as Levine and Wright note, this conflict does not necessarily imply a contradiction.[215] For there to be a contradiction, and not merely stagnation, it needs to be possible for the forces of production to continue developing in a different situation. For the relations of production to be fettering the forces of production, there must be another accessible situation,

[214] The statement only logically entails that this occurs at least once in history. It would be consistent with this statement for one set of relations of production to be compatible with all levels of development of the forces of production up to a certain point and for another to be compatible with all levels of development after that point. In this situation a contradiction would occur only once in history, when the first set of relations of production become incompatible with the development of the forces of production. It is only with a finer understanding of specific relations of production, and with the hindsight of history, that we can determine that there are levels of development of the forces of production which are incompatible with both the first and (if it exists) last set of relations of production. These levels of development of the forces of production can only be reached using intermediary relations of production, which have a finite beginning and end.
[215] Levine and Wright, 1980, p. 63-64.

another accessible set of relations of production, in which the forces of production are not fettered.[216]

*Relations as Fetters to the Forces of Production*

In the 1859 'Preface' to *A Critique of Political Economy* Marx claims that "[a]t a certain stage in their development, the material productive forces of society come into conflict with the existing

[216] I use the term "accessible" in the relatively commonly used sense of achievable from our current standpoint. This is in contrast with the term "feasible", which means feasible in theory; not in conflict with the laws of physics, human nature (if such laws do in fact exist), biology, and so on. Any state that is accessible must be feasible, but a situation may be feasible but not accessible if there is no route from the situation described to the feasible situation. Buchanan, 2003, p. 38; and Cohen, 2009, pp. 56-57. Eric Olin Wright makes a similar distinction between achievability and viability. Wright 2006, pp. 96-97; and Wright 2010, p. 20.
I will however need to develop this distinction a little further. Often, those discussing accessibility will argue that one of the elements that might make a feasible situation inaccessible is that our culture, ideas, ideology, or institutions do not allow it. This may perhaps be appropriate when considering whether a social movement can currently implement new changes. However, part of the process of changing relations of production involves changing precisely these superstructural elements. As such, from a historical materialist standpoint, a situation may be accessible even if the superstructure does not allow it, so long as it is possible to change whatever elements of the superstructure are making it impossible. Capitalism was accessible in late feudalism, even though everything from its laws to its ideology blocked it. This is because as a part of the process of transitioning towards capitalism, the bourgeoisie was able to develop new ideologies, supplant old laws, and otherwise remove the barriers that remained in its path as part of the process of developing capitalism. Not allowing capitalism to be considered accessible until after all of this had occurred would only allow capitalism to be considered "accessible" after much of the process of creating capitalism has already occurred. In fact, given the complex and not always intentional processes that generally constitute the rise of a new set of relations of production, a situation may be accessible even if no one in a society believes it is. If simply following their interests allows the bourgeoisie to put themselves on the road to capitalism, they need not even have a concept of capitalism, let alone believe that they could achieve it. This definition still allows there be contexts in which a set of relations, such as capitalism, is not accessible. If the situation is such that it is impossible to overcome the barriers opposing it (one of which I would take to be competitive societal context) then capitalism is not feasible. In essence, if it is practically possible to begin a process that could successfully lead to a new set of relations of production in a certain situation, then this set of relations of production is accessible.
It may be objected that this means a set of relations of production may be accessible well before its earliest possible implementation. After all, how can something be said to be accessible now if it is impossible to implement now? This is, however, merely a consequence of the type of process involved in creating a new set of relations of production. Instantaneous change cannot in any context be a requirement for accessibility. Even the most rapid of social changes require time. It takes time to convince people of the necessity of a change, mobilize support, get a change officially adopted, set up institutions, write laws, and inform the affected people of a change. These are just some of the elements involved in making change, and any societal change will involve at least some of these. Transforming relations of production requires even more wide ranging and time-consuming changes. But any change will have some time gap between when it is accessible and when it is implemented.

relations of production […]. From forms of development of the productive forces these relations turn into their fetters. Then begins and epoch of social revolution."[217] Social revolution, change in the relations of production, comes about when the prevailing relations of production begin to fetter the development of the forces of production. This is a quite familiar thesis, and it is one that is central to Cohen's work, as well as to most views of historical materialism which center on the primacy of the forces of production.

Key to this statement is the notion of fettering. However, the exact meaning of fettering is rather unclear. To begin to address this Cohen devotes an entire chapter of the 2000 edition of KMTH to responding to a criticism he received about the ambiguity of the notion of fettering in earlier editions.[218] The ambiguity centers around the fact that fettering can be interpreted in two ways: absolute fettering and relative fettering. Absolute fettering is when a set of relations of production is unable to further develop the forces of production at all. Relative fettering is when a set of relations of production is unable to develop the forces of production as effectively as an alternative set of relations. However, each of these views of fettering is insufficient to account for historical change according to Cohen. Absolute fettering does not clearly predict that capitalism, or any system for that matter, is likely to ever fetter the development of the forces of production. It is difficult to imagine a set of relations of production being unable to further develop the forces of production *at all*. Relative fettering, on the other hand is not, on its own, enough to cause political revolution. If the situation were such that socialism could develop the forces of production marginally better than capitalism, relative fettering is occurring but it does not seem plausible to say that people will be willing to brave a political revolution, and all the costs it entails, for this small, and possibly not even recognized or known, advantage.[219] Additionally, as Levine and Wright note,

[217] Marx and Engels, 1987a, p. 263

[218] Cohen, 2000, pp. 326-340. The critique that inspired this chapter was a rather brief portion (pp. 96-97) of a longer critique by Richard Miller (1981).

[219] See Cohen, 2000, pp. 327-328. Note that this requires that there be an alternative for fettering to be possible. In a situation where no alternative is accessible, fettering is not occurring. This may well be the case in contemporary capitalism according to some views (such as Streeck, 2016, p. 57). In such cases, a society will

those participating in the revolution cannot rationally expect that their standard of living will increase to such a degree to compensate for the costs of revolution as well as the risk that the revolution might fail for a whole host of reasons.[220] This is not least because a new set of relations will not immediately grant societal material abundance, only allow for the further development of the forces of production. The children or grandchildren *might eventually* experience increases in standards of living that could materially compensate for the sacrifices of their parents, but the revolutionaries themselves will not and so it is not in their rational self-interest to revolt.[221]

Given the importance of revolution to this discussion, I would like to make clear a distinction between two kinds of revolution which are often conflated. Typically, when we think of revolutions, we think of political revolutions. These political revolutions are upheavals which change the system of government or the makeup of those in charge of governmental institutions in a rather clearly definable moment. For instance, it is in this sense that the American and French revolutions are revolutions. They replaced monarchical rule with republican rule. Historical materialism, however, is more concerned with social revolutions. These are revolutions which change the relations of production, and they often involve a longer-term process of change. There was no event that in one instance transformed feudalism into capitalism. Rather capitalism came about over a period of time.[222] Some of this chapter, including the current discussion on the costs of revolution, is

---

either limp on until a new set of relations emerges, or perhaps, collapse. This will be discussed further in chapters 5 and 6.

[220] Levine and Wright, 1980, p. 67. See also Buchanan, 1979, pp-62-66.

[221] This is the problem of what is often called the "transition trough", a period wherein the material welfare of the class with an interest in transition decreases as part of the process of transitioning (before, ideally, increasing to greater heights than they had attained previous to the transition). See Przeworski, 1985, especially pp. 176-177; See also, Wright, 2010.

[222] Marx's formulation in the Preface is very clear that social revolution is more of a process than an event since he describes the process which brings about a new mode of production as "an era of social revolution". Marx and Engels, 1987a, p. 263. Marx shows how this process plays out in the rise of capitalism in his chapter on primitive accumulation in *Capital* volume 1. Primitive accumulation, which gives rise to capitalism, is not a political revolution, but a drawn-out process of expropriation of the proletariat to be and accumulation of capital largely through colonization. Marx and Engels, 1996, p. 705, pp. 708-709, pp. 738-739. Marx uses the word revolution frequently to describe moments in this process and he appears to conceive of periods of social revolution as being composed of smaller revolutionary moments such as the steps by which "great masses of men are suddenly and forcibly torn from their means of subsistence". Marx and Engels, 1996, p. 707.

concerned with political revolutions and not social revolutions. However, these discussions are still germane to historical materialism because social revolutions often involve political revolutions as a key part of their development. Were certain necessary political revolutions never to take place as a part of a given social revolution then this might halt the social revolution. Additionally, it is widely believed by Marxists that a political revolution will be fundamental to the rise of socialism, so the problem of political revolution is an especially important one for the possibility of socialism.[223]

After considering a few possible views around fettering, Cohen settles on what he calls "relative net fettering" as the fettering at work in historical materialism. The prevailing set of relations of production is a relative net fetter when a rival is able to *increase used productive power*. Used productive power is the productive power that a set of relations of production is able to mobilize in practice, as opposed to the amount it may potentially mobilize. To use one of Cohen's examples, feudalism would be use fettering relative to capitalism if capitalism allowed the concentration of workers in manufactures whereas feudalism did not. Here the knowledge of how to create a manufacture is available to both, but only capitalism can use it, meaning their productive power is greater right now.[224] For this to be *net* fettering it would need to be the case that capitalism promised an increase in used productive power, and not necessarily an increase in used productive power right now. To illustrate the distinction using the same example, let's imagine that the very earliest manufactures were not initially able to produce as much as their guild counterparts, perhaps because manufactures need to work out some kinks in this new mode of organizing labor. This would merely be a temporary problem as they would be able to overcome such hurdles with a little

[223] I take this distinction to be at least very similar, if not identical, to Trotsky's distinction between the social and political revolution. It is quite clear that for him social revolution involves change between relations of production while political revolution involves changes in the political leadership and institutions of the state. "History has known elsewhere not only social revolutions which substituted the bourgeois for the feudal regime, but also political revolutions which, without destroying the economic foundations of society, swept out an old ruling upper crust". Trotsky, 2004, p. 217. See also Trotsky, 2004, pp. 190-191. He is not completely clear as to whether or not social revolutions play out over the longer term, or are also meant to be encapsulated in an event as political revolutions are. However, given his discussion of transitional modes I believe he would agree that a social revolution is a longer term process. Trotsky, 2004, pp. 192-193.
[224] Cohen, 2000, pp. 329-336.

time, at which point they would significantly outpace feudal guilds in terms of used productive power. Here, the manufactures allowed by capitalism are in fact initially use fettering since they allow for less initial used productive power. However, the feudal guilds are net use fettering because the manufactures offer increased used productive power in the future. Cohen prefers net fettering to use fettering for two reasons. The first is that it is rational to prefer capitalism over feudalism in the above example, as capitalism offers greater total used productive power. And the second is that use fettering becomes disjointed from the development of the forces of production.[225] The preferable set of relations of production on the use fettering account does not actually need to be able to develop the forces of production at all. This makes it possible to halt the development of the forces of production by ensuring that the old relations maintain a greater ability to make use of the current forces of production than alternatives. If use fettering is all that matters, then in the above example feudal authorities could prevent manufactures from ever being given the opportunity to iron out their initial difficulties, meaning that they would never be able to develop into an alternative that is able to create greater productive power than the guild system.

It is not entirely clear how relative net fettering responds to the problem Cohen posed to relative fettering. Cohen does not address the problem directly, and he does not propose the notion of relative net fettering to respond to the problem of political revolution. If it is a problem that people cannot be rationally interested in undertaking the costs of political revolution for a growth in productive potential, it is not clear that the growth of used productive power fares significantly better. Granted, it is more to their immediate benefit if the tendency to increase productive power consists of productive power that is actually used and therefore could redound to their benefit. But it remains the case that relative net fettering will exist well before this fettering is sufficient to bring about desire for a political revolution, and it is still the case that a higher ability to increase used production represents only future benefits that will only come into fruition gradually after the new

[225] Cohen, 2000, pp. 334-335.

set of relations is put in place.[226] In other words, relative net fettering will still in most cases provide benefits that are too small, or too far in the future to create a rational interest in bearing the costs of revolution.[227]

There are two rather straightforward replies to the problem to political revolution posed here. The first is to argue that revolutions simply aren't about rational utility maximization, and revolutionaries are not always acting in their individual or even collective rational self-interest.[228] Rather, revolutions are often carried out for moral, political, or emotive reasons. Revolutionaries may want to bring about a better society even if the material benefits this new society would provide them, or anyone they know, do not outweigh the costs of revolution. It may be enough for revolutionaries to believe that they are making things better for their descendants. It may be that the achievement of freedom, dignity, or any number of other values is enough for revolutionaries to be willing to weather the material costs and risks of revolution.[229] Or maybe they just revolt out of sheer hatred for the people in power. This is not to say that revolutions are necessarily irrational. But they need not be necessarily rational either.

The second, related, response is that revolutions do bring about some immediate benefits to the revolutionary class. It can be in the interest of the class carrying out the revolution to do so because they will see their position in society and their own material condition immediately improved after a period of revolution. The bourgeoisie makes itself the ruling class as a result of its

[226] Cohen notes that his additional work elucidating fettering and how it might work is incomplete. Cohen, 2000, p. 329, footnote 2. He is not specific about the ways in which he considers it to be incomplete, I believe that the lack of a full response to the problem of revolution is at least one of the ways in which the discussion was left somewhat unfinished.

[227] Use fettering does not fare much better. It shares the problem with net fettering that outweighing the costs of revolution is a very tall order. Additionally, while it may its advantages may not be oriented towards future used productive power, there will still be significant uncertainty as to whether or not the revolution in question will be able to deliver on the promised benefits. Revolutions do not always have the intended effect, and even in cases they do, the system they create may not work exactly as those participating in the revolution expected it to.

[228] Cohen rejects individual rational self interest as the motivator for revolution, but does appear to expect collective rationality. See Cohen, 2000, pp. 328-329; and Cohen, 1988, Chapter 4. This is consistent with his tentative rationalist explanation for the transition between relations of production.

[229] Nancy Holmstrom for instance makes this argument in response to the paper by Allen Buchanan that Levine and Wright are drawing from. Holmstrom, 1983, p. 308; and Buchanan, 1979.

revolutions, immediately improving their own economic wellbeing. A socialist revolution should see the proletariat gaining control of the means of production allowing them to also immediately improve their material situation. Even on an individual level, successful revolutionaries will typically place themselves in places of power, importance, or influence, or otherwise ensure that the revolution materially impacts them in a positive way. All of this means that revolution could in fact be individually rational for the revolutionaries.[230] Or, failing that, there may be a class interest in revolution which outweighs the class costs of said revolution, at which point whether individuals undertake it would be dependent on whether or not they possess sufficient class consciousness.

The view Cohen initially proposed, however, cannot accept either of these responses. As noted in Chapter 2 of this work, Cohen's functional explanation of the relations of production relies on there being a generalized rational interest in developing the forces of production.[231] Social revolutions in this view successfully bring about new relations of production when the class carrying them out (in its own interest) gains the support of other classes due to the ability of their new relations to increase the development of the forces of production.[232] The bourgeoisie is able to defeat the feudal lords when it is able to propose arrangements which allow for greater development of the forces of production, something all classes have an interest in (even if this interest may be outweighed by other factors as in the case of the feudal lords in this instance).[233] This allows them to obtain the support of other classes, urban artisans, or sections of the peasantry in this case, which gives them the upper hand in the class struggle and allows them to put forward a new system. As such, political revolutions which form a part of social revolutions are, for Cohen,

[230] As Holmstrom notes, the notion of individual incentives playing a major role in political revolution seems unlikely, given ruling classes' ability to give individual incentives that would likely significantly exceed these (not to mention avoid the risks and costs associated with revolution). Holmstrom, 1983, p. 310. I note it nonetheless because it could conceivably play a role.
[231] [A reference to chapter 2 to be put in during final draft when the thesis is finalized].
[232] See Cohen, 2000, pp. 292-293.
[233] Of course, this interest can be outweighed for certain classes by side effects or consequences of the development of the forces of production. However, all classes would (other things being equal) prefer greater development of the forces of production according to Cohen's account.

possible due to the revolutionary class's ability to appeal to other classes on the grounds of their interest in the development for the forces of production.

If, however, revolutions are not carried out for (collectively) rational reasons, this undermines Cohen's argument that changes in relations of production take place due to a rational interest in the development of the forces of production. This decouples revolutions from the forces of production. While Cohen never claimed that development of the forces of production needed to be the recognized goal of those supporting the revolution (and indeed recognized this as implausible), a preference for greater developed forces was the (tentative) reason he provided that the emergent ruling class would gain support over the previous one.[234] Other classes supporting this class will at least tend to support the new ruling class over the old because their goals will tend to be better met when there are greater resources overall to meet them. There are many reasons for which revolutions might be undertaken, such as desires for freedom, equality, dignity, respect, and so on, which are not necessarily more easily met with greater developed forces of production.[235] How, then, do we know that only the revolutions that bring about relations of production that further develop the forces of production will be the ones that gain the support to succeed?[236]

[234] Cohen, 2000, p. 292. Further cementing the notion that Cohen relies on rationality in revolution, Cohen often talks about revolution in terms of cost-benefit analysis, and he discusses the distinctive contradiction of capitalism as being about its irrationality. See for instance Cohen, 2000, pp. 245, 310

[235] The fact that standards of living, freedom and equality were diminished for most in the transition from hunter gatherer to slave societies, for instance, should be enough to show this point. Diamond, 2002,p. 1; and Giddens, 1981, p. 23. This isn't to say that they are never more easily met when there are greater developed forces of production. The desire to have a decent standard of living, for instance could, in theory at least, be met more easily with greater developed forces of production. However, this is not clearly true for the desire, say for freedom. And the desire for equality may often lead people to positions that are counter to the development of the forces of production, which often brings with it greater inequality. Additionally, while some desires might, in theory, be met more easily with greater developed forces of production, it is hardly clear that they are in practice. Whether the lower classes had a better standard of living in feudalism or early capitalism is at best a debatable issue. There is, for instance, evidence that life expectancy in England dropped quite substantially in the early years of capitalism, only reaching 1556 levels again in the 1820s. Wrigley and Schofield, 1981, pp. 413-415.

[236] Levine and Wright are able to avoid this problem by arguing, similarly to what I argue below, that effectively we don't. All we can say is that the development of the forces of production is "sticky downwards". There is no inherent reason to believe that social revolutions which develop the forces of production will succeed. But, generally speaking, gains to the forces of production are unlikely to be lost. Wright, Levine and Sober, 1992, pp. 80-81. However, unlike societal selection, this view does not argue that greater developed forces and the practices which foster them are likely to spread at the expense of others.

On the other hand, while revolutions certainly do at times redound to the benefit of the revolutionary class, this is not sufficient to explain the support for revolutions. Any class can make a play for power in their own interests, but for Cohen's explanation to work one needs to explain not only why the revolutionary class is interested in revolution, but also why other classes would be interested in supporting them over the old ruling class, or at least in remaining neutral and not supporting the existing ruling class.

*Societal Selection and Fettering*

Societal selection proposes a different view as to how fettering might translate into the development of the forces of production. Instead of attempting to explain the emergence of a new set of relations of production, societal selection instead explains the ability of new relations to endure and spread at the expense of old relations of production. New relations emerge throughout history, perhaps through personal ambition, or class struggle, or social experimentation, the exact means is not relevant here so long as there exists a possibility for such relations to emerge. But to explain how capitalism becomes dominant, the major factor to be explained is how it was able to avoid becoming a footnote in history and instead to become a dominant set of relations that spread throughout the world. The emergence of capitalism, and the factors that led capitalism to arise in Great Britain, are certainly interesting and important lines of inquiry. But they do not explain why it is that capitalism became the dominant mode of production, as opposed to simply being a historical point of interest in a feudal world. Explaining the rise of capitalism as the dominant set of relations of production therefore principally requires that we explain how it is that capitalism was able to spread at the expense of feudalism (more on all of this in Chapter 6).

To do so, the argument I propose is an extension of the argument that has been the focus of the last two chapters. Societies with greater developed forces of production will tend to spread at the expense of those with less developed forces. Therefore, if a set of relations brings about a greater level of development of the forces of production than another, the former will spread at the expense of the latter. Capitalism is able to outcompete feudalism; slavery is able to outcompete primitive communism.[237] The ability to develop the forces of production is therefore determinative of the set of relations of production which is able to become dominant at any given time. The forces of production, according to societal selection, do not explain the emergence of a set of relations of production, only their rise to dominance.

To Illustrate this, consider two societies, A and B, roughly at the same level of development of the forces of production. They both possess relations of production X which develop the forces of production at a relatively slower rate than relations of production Y at the current level of development of the forces. Let us imagine that society A undergoes a social revolution and changes its relations from X to Y. A and B both start at the same level of development of the forces of production; A will achieve a greater level of development of the forces than B as time passes. Therefore, A will have an extra labor advantage over B that will become greater and greater as time passes until either A conquers or otherwise gains some form of control over B, or B manages to catch up to A through imitation (both of relations Y and of the forces that A has developed since adopting Y). Either way, B is likely to need to adopt Y, perish, or become peripheral to A.[238]

Given that societal selection is agnostic about the process of change in relations of production, the problem of political revolution is not a problem for societal selection. This is because the societal selectionist view does not seek to use the forces of production to explain the emergence of new relations of production, but rather to explain their survival and spread. Societal selection can

[237] The transition from slavery to feudalism is more complicated for reasons I discuss later in this chapter. See pp. 96-97.
[238] See footnote 137 for a discussion of what I mean by peripheral.

therefore adopt the notion of relative net fettering without running into the problems Cohen intentionalist explanation of shifts in relations of production does when it comes to revolution. Political revolutions do not need to be rational, and they can occur when they favor the development of the forces of production or when they do not.[239] How exactly they occur requires a separate analysis to determine, but it is beyond the scope of societal selection.

Additionally, unlike Cohen, societal selection can adopt relative fettering without needing to worry about the fact that it does not provide a decisive enough criterium for social change in cases where a new set of relations only develops the forces of production marginally more than the currently dominant one. If Y only develops the forces of production marginally more than X, X is a relative fetter to the forces of production, but the meager advantage of Y is not enough to justify a political revolution (and thus any social revolution that might depend on it). For societal selection, on the other hand a marginal advantage is sufficient. If Y develops the forces more rapidly than X, even marginally, then society A will outstrip society B, all other things being equal. Once relative fettering is occurring, according to societal selection, the conditions are ripe for a social revolution to install relations which supplant the old relations.[240]

However, the difficulty is that all other things are not necessarily equal. For one, A presumably underwent some sort of political revolution as part of the process of transforming their relations of production, while B did not. To be clear, unlike the previous discussion concerning political revolution, what is important for this analysis is the societal costs of revolution, not its costs to the individual. Successful political revolutions can involve death, resistance from the vestiges of the old ruling class, difficulties setting up new systems of governance and new social relations, lack

[239] To underline the point briefly, societal selection does not entail that all political revolutions will favor the development of the forces of production. It is quite possible for political revolutions to occur which retard their development. However, what societal selection does predict is that the institutions brought about by these political revolutions will not tend to spread.

[240] An implication of the adoption of relative fettering is that no society, however dysfunctional or however slow it may be to develop the forces of production, is ever fettering those forces unless an alternative set of relations which is better able to develop the forces is accessible.

of expertise due to some of those with expertise siding with the old regime, etc. This means that it is possible for A to have a temporary extra labor disadvantage to B in the early days after the revolution.[241] Greater resources might be required to maintain stability due to resistance and administrative inefficiencies, and if significant death was involved less labor might be mobilized in total than before the revolution. This poses a problem to societal selection. After all, if society A is less competitive in the short run it may well not survive long enough for the advantages of its new mode of production to kick in.

It may be possible in certain transitions between relations of production that political revolution may not be necessary. However, even when this is the case, the internal societal changes involved in the process of social revolution itself will usually entail their own inherent costs. First of all, social revolutions may involve social displacement. Some occupations or positions of social importance become obsolete or less important and those who used to perform them struggle to find new roles in these new relations.[242] This may result in portions of the population not yet being put to work, resulting in reduced extra labor by virtue of the fact that there are many who aren't laboring or are scraping by using relatively unproductive labor. Furthermore, this segment of the population, as well as those who may have found a place in the new relations but are not content with it, may lead to unrest, rebellions, revolutions or counter-revolutions which all entail their own costs as mentioned above. Additionally, as a social revolution is ongoing, it is quite possible that the relations will be implemented or governed in an inefficient manner as experience has not yet taught those in power how to run their new institutions and structures of power. Finally, new relations of

[241] To be clear, this temporary disadvantage is a disadvantage in extra labor and not in the development of the forces of production. Barring exceptional circumstances, such as the revolution involving the eradication of knowledge of the most productive techniques, the level of development of the forces of production will not have changed. Revolutions entailing such knowledge eradication may occur but that form of revolution would seem to be anathema to any set of relations which would develop the forces of production to a greater extent than existing relations. The destruction of knowledge to the extent that it reduces the level of development of the forces of production is quite difficult to achieve and the vast effort involved would be difficult to square conceptually with a set of relations which develops the forces of production. See Wright, Levine and Sober, 1992, p. 81.

[242] Social displacement was quite infamously a major element in the rise of capitalism. Marx and Engels, 1996, p. 705, pp. 708-709; Wood, 2002, pp. 108-109, pp. 153-154; and Polanyi, 2001, p. 37, p. 42.

production can sometimes entail their own inherent costs that initially prevent them from being realized or spreading. Many of the earliest slave societies seem to have failed due to vulnerabilities to crop failure, disease, deforestation, salinization, class resistance, and population flight, most of which would either not have been an issue, or have been a lesser issue, for previous societies.[243]

In addition to costs inherent in social revolution (and any political revolutions it may require), society A can also be expected to face an additional hurdle due to its nature as an upstart system in a hostile world. Assuming a social revolution occurs only in A, all of A's neighbors will presumably still be using X, the older relations of production. Society A will therefore find itself isolated in the face of many societies with a different set of relations of production. These societies may decide to coordinate an invasion against, isolate, embargo, support counter-revolution against society A, or otherwise attempt to undermine society A's prospects. Even if, at some level of development of the forces of production, society A would be able to weather these attacks, it is far less clear that they would be able to do so immediately. Given that A's advantage is in its ability to develop the forces of production, and not in its current greater development of the forces of production, it is not clear that it would immediately be able to win a confrontation with a single society, such as society B, let alone one with all of its neighbors simultaneously.

If the situation is such that others might band together against A, or A's revolution to change the relations of production entailed significant costs, societal selection predicts that new relations will *only* be able to emerge in situations where these incumbent advantages are counteracted or neutralized by other factors long enough for A to gain a sufficient lead in the development of the forces of production for societal selection to start to take effect. There are therefore two elements

[243] Scott, 2017, pp. 189-191, p. 195, p. 207. Jared Diamond cautions against seeing past societies as having a more sustainable relationship with their environment than later societies, and he is to some extent correct, so these statements should be taken with a grain of salt. Diamond, 2005, pp. 9-10. However, it is worth noting that the examples he cites are all class societies, and so it may be tenable to some extent to argue that "primitive communist" societies simply did not have the productive capacity, the focus on agriculture, large enough urban areas, or the strongly enforced class divisions required for these to be as large problems as they later became.

to consider. First of all, how much more quickly do Y, the new relations, develop the forces of production compared to their older counterpart, X? This determines how long these counteracting factors need to hold. The greater the advantage of Y over X, the more quickly Y will be able to spread at the expense of X and the less society A will need to rely on countervailing factors to stay afloat.

And second of course are the counteracting factors themselves. Quite a few elements can allow a new set of relations of production to survive in a world dominated by other relations. The following, non-exhaustive, list will give a few examples in order to illustrate how this might occur:[244]

1) Ongoing collapse of the old relations of production: This is perhaps one of the more important ways in which a newly emerging set of relations might be able to withstand old ones. Additionally, this is one that is likely to be present in a revolutionary situation. Societies using the old relations of production might find themselves in inner turmoil, facing crisis, or revolt for similar reasons that presumably spurred society A to revolution. At an extreme, there might be other societies in their own process of revolution or on the brink of revolution. This factor likely increases in importance as the forces of production develop and the world becomes more interconnected. The wave of resistance and political revolution that swept Europe in 1918-1920 may have contributed to the survival of the USSR and exemplifies how this struggle might serve to distract other societies. It is even possible, though not the case in the example of the USSR, that other revolutions might succeed and yield additional allies to the initial revolution.

2) Geography: Geographic isolation can play a role in allowing new relations to emerge without being hindered by the old. This can take the form of distance or of terrain or other geographical factors that limit the ability of the states with dominant relations of production to invade or retain administrative control of an area. Contrary to the importance of inner turmoil and collapse, the importance of given distance or given geographical factors will tend to diminish as the

[244] As a reminder, the historical examples used here, as in the rest of this work, are purely meant to be illustrative of the mechanism at play, not claims about historical fact.

forces of production develop and communication, administration, and invasion become more feasible across long distances or hostile terrain. The geographical distance of North America could be considered to be one of the reasons the American revolution was able to succeed, and it is possible that Britain's status as an island helped it in its own transition to capitalism.

3) Division among the societies using old relations of production: If there is heightened competition and intra-imperial rivalry within societies with relations of production X then an upstart which uses relations Y may be able to play one rival off against the other. If societies B and C are in imperial conflict, and B has an interest in suppressing the revolt, C might decide, or be persuaded to intervene to prevent this from happening. The French monarchy siding with the American revolutionaries in order to weaken the imperial power of Great Britain illustrates this possibility quite well, especially since it was overthrown not long after by its own political revolution. Additionally, it is quite possible that the only reason the early USSR was able to withstand the combined intervention of the Allied European countries was that these countries were coming out of World War I and were politically and militarily unable to intervene as strongly as they might have liked.

4) Advantages inherent in the revolution or new relations of production: The new relations themselves, or the process of revolution itself, might be able to provide some advantages which can be used against aggressors. The illustrative examples I have in mind involve the ability to mobilize people in the defense of the revolution, such as the French revolution's conscriptions during its defense of Paris, the Napoleonic "Levee en Masse", and the mobilizations against Kornilov after the February Revolution in what was at the time the Russian Empire. However, I don't want to rule out other possible inherent advantages.

Therefore, the lesser the advantage of new relations of production over old, the more of these factors need to be present to secure a social revolution. Once a set of relations starts relatively

fettering the forces of production, social revolution and the transition towards new relations of production becomes possible abstractly.[245] Whether it is possible anywhere specific, however, will depend on how strong relative fettering currently is and on how many of these resources any given society would be able to draw on. Therefore, in a situation where a set of relations is fettering the development of the forces of production, societal selection expects that new relations will successfully persist in those societies possessing the most of these advantages. It will then be from those societies that these new relations will be most likely to spread.

This foray into responding to the problem of revolution has to some extent exceeded the bounds of the problem of contradiction and moved on to the problem of transformation. However, it was necessary to discuss here in order to show that societal selection can endorse relative fettering while still having a coherent account of revolution. Returning to the problem of contradiction, however, relative fettering claims that contradiction occurs when the forces of production develop to the point that a new set of relations would be better able to develop the forces of production than the currently dominant one. The contradiction does not however immediately imply transformation, and the problem of revolution is only one of the issues in translating contradiction into transformation. These issues will be discussed further in chapters 5 and 6.

[245] Relative fettering requires an alternative set of relations of production to be accessible which develops the forces of production to a greater extent than the incumbent set. As such, for a social revolution to be possible there must be an alternative be available. We can hypothesize that such an alternative exists in any given situation, but it can't always be assumed.

## Thesis 5: The Optimality Thesis[246]

*Optimal Relations*

The optimality thesis is that, in Cohen's words, "the relations which obtain at a given time are the relations most suitable for the forces to develop at that time".[247] And while this sentence is not part of an argument for the necessity of optimality in historical materialism, he does here appear to commit to the notion that the relations that obtain at any given time are the *most* suitable, as opposed to simply *more* suitable, than previously dominant alternatives.[248] Levine and Wright argue that Cohen's historical materialism requires that new relations that emerge to replace old ones must be "functionally optimal". They claim, first of all, that this is a consequence of Cohen's version of the development and transformation theses. As they put it, "If fettering relations of production are abandoned because they conflict with a rational desire for development, it would be irrational to replace them with anything short of those relations of production that, in the circumstances, are optimal for the further development of the production forces."[249] While this does not seem to follow necessarily (in cases where a suboptimal but known alternative might be taken instead of an unknown optimal alternative for instance), even if it were to follow it would not be a major concern for societal selection. Even if Levine and Wright are correct that optimality is a consequence of

[246] Note that I will be taking optimality here to mean optimality in the sense Levine and Wright mean it: The best feasible. This may not necessarily have been the way Cohen was employing the word. Casal argues Cohen intended his use of the term optimality as meaning "rational" or "sensible". Casal, 2020, p. 319.
[247] Cohen, 2000, p. 171.
[248] The point Cohen is making in the section in question is that relations of production which are more capable of stimulating the development of the productive forces may not be as suited to develop the forces of production at a given stage in their development as another, less stimulating, set of relations would be. Capitalism stimulates the development of the forces of production to a greater extent than feudalism, but feudalism is more suited to developing the forces of production in the time in which it prevailed than capitalism. Cohen does frame these statements in terms of optimality, but optimality is not strictly necessary for the point he is making at the time.
[249] Levine and Wright, 1980, p. 55.

Cohen's view, it is quite clearly not a consequence of societal selection. Selectionist mechanisms do not select for optimality, they only select for traits which enhance the criteria being selected for.

However, Levine and Wright go on to make the second argument that optimality is necessary for forces functionally to explain relations of production. "[I]f the productive forces did not, so to speak, 'select' the optimal relations from among the set of possible relations the character of actual relations for production would not be explained (functionally) by the production forces."[250] If correct, this would pose a challenge to societal selection as it would claim that selectionist explanation in this case is not enough to underpin the functional primacy of the forces of production. However, this is too strong an expectation for the functional explanation. A functional explanation explains the existence or properties of an entity by its function, not its optimal performance of that function. A poorly made blunt knife might exist and have some of the properties it does because it was made to perform the function allowing people to cut vegetables, but it is hardly the optimal tool to do so. A creature may have developed an adaptation because it performs the function of enhancing their fitness without it being the optimal adaptation that could have arisen.[251] And in the case of relations of production, a suboptimal set of relations can emerge because it is able to develop the forces of production further without it being the optimal one. The primacy of the forces of production simply entails that relations of production only thrive when they are able to perform the function of fostering the further development of the forces of production. The forces have primacy because any set of relations which fails this test will be replaced by one that does not. In an imagined case where two sets of relations of production are potentially viable to further develop the forces of production the forces of production can then be said to explain the success of *either* of them, since both fulfil the criteria of permitting the further development of the

[250] Levine and Wright, 1980, p. 55.
[251] Gould and Lewontin, 1979, pp. 584, 593-596.

forces of production. The forces are not able to explain fully why one might necessarily win out over the other, but they can explain why they are the only two relations in contention.

That said, societal selection does provide a mechanism which would lead us to expect that in such a case the optimal relations (or at least, the accessible relations which are closest to optimal) will be *more likely* to be the ones which become dominant. If new relations replace old ones because they allow greater development of the forces of production, then presumably it would be easier for a set of relations that optimally develops the forces of production to replace the old relations than it would be for a set of relations which develops the forces to a lesser extent. All other things being equal, the faster a set of relations is able to develop the forces of production, the faster it will be able to possess a strong competitive advantage over its neighbors. This means that the optimal set of relations, if there are multiple accessible relations, will be more likely than their non-optimal counterpart(s) to be able to overcome the hurdles and countervailing tendencies which might oppose them when they emerge.

Additionally, if two sets of relations are possible and one is optimal for the development of the forces of production then societal selection expects the optimal one to be selected for if both end up emerging in different times and places. After all, the optimal one will be able to develop the forces of production at a greater speed, meaning the non-optimal relations will be at a competitive disadvantage.[252]

This argument entails that, all other things being equal, the optimal set of relations should be able to supplant non-optimal relations. However, it is certainly possible that all other things will not be equal. There is the possibility of falling into the historical materialist equivalent of a low

[252] This is not to say that the non-optimal relations would never have an advantage in this view. It is possible for instance that the relations that are currently non-optimal might be those which will, in the future, be able to develop the forces of production further once the relations that are currently optimal develop the forces as far as they can and then begin to fetter them.

equilibrium trap. [253] Consider, for instance, a situation where the non-optimal relations might emerge significantly before the optimal ones. In this case, the non-optimal relations might have accumulated enough of an advantage in numbers to outweigh the advantages of the optimal relations. They might furthermore have been able to foster the development of the forces of production in such a way that the once optimal relations are no longer optimal. And given that the differences are not necessarily that stark, and that neither relations are fettering the forces of production, this situation may be able to stand until one (or even both) relations begin to fetter the forces of production.

*Effective Optimality*

This section discusses the possibility that that despite what I have argued above, there may be an argument that new relations will be optimal. As I've just argued, this is not a necessary claim of societal selection. And indeed, I consider the fact that societal selection does not require that new relations be optimal to be a strength of the theory. Nonetheless, I include this discussion for two reasons. First of all, a full discussion of optimality should include this possibility, if only to explore whether or not this possibility yields fruit. And second, this discussion will help clarify exactly how relations of production are understood in this work.

Thus far I have discussed this problem assuming that it is possible for there to be multiple sets of relations of production which further develop the forces of production. However, this is not necessarily the case. There is a case to be made that at any given crisis of one set of relations, only

[253] As Gould and Lewontin note, natural selection can be subject to architectural constraints. Gould and Lewontin, 1979, pp. 584, 593-596. Certain paths of adaptation may no longer be available to an organism once a biological structure is set. Similarly here, once one set of relations is adopted, another might become significantly more difficult or impossible to adopt until this set of relations begins to fetter the development of the forces of production.

one other will be able to further develop the forces of production at that juncture. It may therefore be theoretically true that new relations that achieve dominance are not necessarily optimal, while simultaneously being the case that these new relations will in practice always be optimal because they are always the only ones that further develop the forces of production. This could for instance be true if we adopt the schema that Cohen uses to classify relations of production, or in some other way limit the possible range of relations of production.[254] Cohen's schema allows us to delineate relations of production by the status of the laborer within it. Particularly, relations can be categorized based on the combination of the extent of the laborer's ownership (or rather, effective control) of their own labor power and the extent of their ownership of the means of production. Relations can then be classified along the lines of whether the laborer owns (i.e. has effective control over) none, some, or all of their labor power and none, some, or all of the means of production they use.[255] Capitalism for instance, in this view, is the set of relations of production in which the laborer has effective control of all of their labor power but none of their means of production. Cohen then proceeds to show that the relations of production described by Marx (slavery, feudalism, capitalism, and socialism, exemplified by the slave, the serf, the proletarian and the independent producer) are the only ones that are distinct and stable.[256] Other possible configurations of ownership of labor

[254] Cohen, 2000, p. 65.

[255] Cohen uses the term "subordinate producer" instead of "laborer" here. I use the term laborer, or sometimes immediate producer, largely for simplicity's sake, since the reasons Cohen has for preferring the term subordinate producer are not relevant here.

[256] I use the canonical names for these relations of production, though as will be discussed momentarily they are much broader than is often realized, in part due to the misleadingly narrow nature of the names. Slavery and feudalism in particular are names that designate only the most famous subtype of the full relations they represent. John Haldon discusses this more in depth with regards to feudalism. Haldon, 1993, pp. 66-67.
It is worth noting that this formulation does not regard the the "Asiatic" mode of production as a distinct mode of production. I will not attempt to rehash the argument here, as this point has been well made by various other authors. See for instance Hindess and Hirst, 2018, pp. 178-179, 200, 206; Haldon, 1993, pp. 76, 158-159; and Anderson, 2013a, pp. 494-495.
As for primitive communism and communism, it may not even be necessary to classify them in this formula as they are not class societies. However, if need be, they fit quite easily into "socialism" since their production is also based on independent producers possessing effective control over their labor and means of production.

power and the means of production are either incoherent, unviable, or not meaningfully distinguishable from the classical Marxist set of relations of production.[257]

This schema does not, of course, tell us everything about any given relations of production, merely of the position of the laborer within it. However, it does encapsulate one key element of a set of relations of production: the relationship between the laborer and ownership of the means of production. As such, this schema is sufficient to distinguish between relations of production, even though it leaves elements of relations of production out.

An immediate consequence of this formulation of relations of production is that these canonical relations of production are quite broadly defined. As Cohen is quick to point out, there can be a significant amount of variation within a set of relations of production. And full ownership, or full lack of ownership will be difficult to find in history.[258] Quite a lot can fit under the rubric of each of these relations of production. To make clear just how wide these relations of production are, I will take each in turn.

---

[257] Cohen, 2000, pp. 66-68. Cohen discusses all of this in much more depth than I have the space to do here. Those interested in the subject of delineating relations of production should read Chapter 3 of KMTH.
Paula Casal argues that his delineation does in fact miss some forms of organization of labor that women are subjected to. In particular, she argues that many forms of marriage can result in women who own means of production (in the form of a dowry, inheritance, or simple property ownership) but have only some or no control over their labor. Casal, 2020, pp. 323-324; See also Casal, 2015, pp. 813-814. Casal appears to be talking about women who own property (presumably including means of production) becoming subordinated to men, either immediately or gradually. Exactly what Casal means by subordination is unclear, but I can see two main possibilities. The first is that this is a case of a woman losing, either immediately or gradually, her effective control over her means of production. This appears to be what Casal has in mind when she says that they "gradually lose control of their dowry or inheritance". However, this form of subordination is not a counterexample to Cohen's view. It is merely a change in who has effective control of the means of production (even if the woman in question may still hold du jure control). It would be similar to any other case where an owner of the means of production were by any means (such as robbery, swindle, or scam) deprived of control over the means of production. It is systematic, yes, but it does not change the labor relation that exists, merely who occupies what position. If the pre-married woman was a capitalist, the man who has effectively dispossessed her is now a capitalist. The married woman simply ceases to be an effective owner of the means of production. There is, however, another sense of subordination which poses a greater problem. This is when the woman in a marriage does in fact retain effective control of their means of production but are forced into providing unpaid domestic labor. While such cases do exist, they are significantly rarer for two reasons. The first is that many forms of marriage and social gender relations do not allow women to maintain effective control of such assets. And the second is that women that do will often be able to have someone else perform these duties in their stead.
[258] Cohen, 2000, p. 68

To begin with, "slavery" consists of relations of production in which the laborer has no effective control over their labor power or their means of production. This of course includes chattel slave relations, but also includes many other forms of labor relations in which the laborer has control of neither their labor nor their means of production, such as debt slavery, indentured servitude, and convict labor.[259]

Next, "feudalism" consists of relations of production in which the laborer has "some" control over their labor and "some" control over their means of production. Again, the serf relation (where a serf is tied to land and owes a tax in money, in kind, or in labor, is due to the lord that has some effective control over the land on which they work) is the one usually used to exemplify this, but this can also include relations based on extracting tribute from one's laborers, or other relations based on extraction of surplus through taxation.[260] There is a lot of leeway in the term "some" for exactly how laborers are limited in their ownership of their own labor and the means of production they employ. Typically, the limitation on the laborer's control over their own labor and over their means of production is implemented through some combination of legal ownership of some of the means of production, direct political control or coercion. However, this categorization does not rule out relations that involve other arrangements where the laborer's control of labor and means of production is limited, but not entirely removed.

"Capitalism", as mentioned above, is characterized by laborers having control over their labor, but no effective control over their means of production. They may have control of some of their means of production (workers may own some of their own tools of instance), but they do not have enough to allow them to independently produce.[261] They are therefore made dependent on

[259] And indeed, evidence suggests that ancient societies relied upon various combinations of these forms of labor. Scott, 2017, p. 29, pp. 152-153, pp. 157-166.
[260] John Haldon argues, correctly in my view, that what has been traditionally described as the feudal mode of production, which he generalizes to the "tributary" mode of production, is much broader than is usually understood and does include, as the name suggests, modes of surplus extraction based on tribute. Haldon, 1993, pp. 66-68. Similarly, I would integrate the tax/rent couple elaborated by Hindess and Hirst into the feudal mode of production, as indeed they do. Hindess and Hirst, 2018, p. 224.
[261] See Cohen, 2000, p. 72.

the owners of the means of production for their ability to produce and thereby procure their means of subsistence.[262] This allows their labor to be exploited by the owners of the means of production in spite of the fact that the immediate control their own labor. This, seemingly, has very little variability when it comes to the basic institutions it implies surrounding the exploitation of labor, since this situation seems to translate into the exchange of labor for a wage. There is some variability when it comes to the extent of the control exerted by capital into the actual process of labor, to the institutions existing around the process of labor (systems of finance, market arrangements, etc.), to labor's bargaining power vis-a-vis capital, but little when it comes to the institutions effecting the extraction of surplus labor itself. If there exist other forms that can be taken by the configuration of full control over labor/none over means of production, I am not aware of them.

Finally, "socialism" consists of laborers having effective control over their labor and means of production. This could include such systems as democratic centralist socialism, market socialism, or some forms of anarchism. However, since it does require that laborers have effective control over the means of production, it does not include relations based on state ownership of the means of production unless this state is democratic enough to allow laborers to collectively control it. Whether or not communism and primitive communism should be classified as "socialism" here is debatable. It is reasonable to argue that either or both should not be in this classification at all since they are not class-based means of organizing society. I will not take a stance on this here, except to

[262] As such, I take Brenner's main defining element of capitalist social property relations (namely that economic agents are separated from their means of subsistence) to be a consequence of the labor relations of capitalist modes of production. His second element, that economic agents must lack the means of coercion necessary to systematically appropriate the means of subsistence from immediate producers by force, is, in my account, simply a statement that the relations of production are not feudal or slave relations. Brenner, 2007, p. 61. Confusingly, "economic agents" appear to encompass both exploiters and immediate producers. This works perfectly well for Brenner's second element. But the first element does not necessarily hold true for the owners of the means of production in capitalism. Many individual capitalists would in fact have the skills, means of production, and land required to sustain themselves completely independently, let alone capitalists as a class. Of course, they do not since they would rather experience the greater standard of living that comes with being a capitalist, but they could.

say that if they are to be classified under in this schema then they would be put under the rubric of "socialism".

This delineation is not meant to be absolutely clear-cut for two reasons. First of all, relations of production rarely, if ever, take their "pure" forms. This is true both for how relations of production themselves are put into practice and for how exclusively a society makes use of their dominant set of relations of production. When relations are put into practice, there are often small portions of ownership or lack of ownership that do not translate into meaningful effective control. A proletarian who owns the stapler they use in their work does have effective control over that instrument of production. But, as discussed above, this effective control does not translate into any meaningful effective control over the conditions of their labor. They would have a hard time leveraging their ownership of their stapler to produce independently, contest the fact that they must work for a wage, or even to bargain for a better wage, or better working conditions.

On a societal level, few if any class societies that span more than a few workplaces have ever had only one mode of exploitation operating in every instance of production. Wage labor, slavery, feudalism, and even free labor will often crop up in societies dominated by another set of relations of production. However, this does not however undermine the usefulness of conceiving of stable societies as possessing a dominant set of relations. Marx himself is very clear that "pure" capitalism does not exist, but argues that an attempt to understand the dynamics of capitalism will yield an understanding of the main dynamics of our current society.[263] Slavery and worker's cooperatives exist in the modern United States, but this does not make the United States any less of a capitalist society. Nor does this make it invalid to analyze the United States as a class society.

[263] Marx and Engels, 1996, pp. 8-9. In a 1846 letter to Annenkov Marx further notes that other relations of production's presence within a dominant set of relations can sometimes be an important one. "Direct slavery is as much the pivot upon which our present-day industrialism turns as are machinery, credit, etc. Without slavery there would be no cotton, without cotton there would be no modern industry." Marx and Engels, 1982, p. 101.

And second, the delineation between relations of production outlined above does not easily include the state of societies in periods of transition between two sets of relations of production, where elements of both old and new relations might coexist uncomfortably in society. Some domains may operate using the old relations and some using the new. Generally, one of the relations will be dominant, but enough of another set of relations will be prominent in a society to be a challenge to these relations, either as new relations which seek to supplant the old or as old relations seeking to regain their previous status.[264] This possibility has been discussed more in depth by others, but suffice it to say for the purposes of this chapter that periods of social revolution will generally not fall neatly into any set of relations of production even if one set of relations or the other may still be dominant at various points in time.[265]

Returning to the question of optimality, this delineation of relations of production allows for the possibility that the canonical relations of production are the only relations of production that are

[264] The question of what the dominant relations of production are in a given society, or are in the world, at a given time is somewhat difficult to ascertain clearly due in part to the uncertain nature of these transitionary periods. A society in which the dominant mode of exploitation involves labor tied to land being taxed is feudal, and one in which the dominant mode of exploitation involves free labor being bought for a wage is capitalist, but in a society where both of these are in evidence at once on a broad scale it may be difficult to say which is dominant. One could argue that the dominant relations are those under which more people labor, or those which produce a greater portion of the goods in a society, or those whose ruling class possesses greater control over political institutions, or the relations that are in control of key economic sectors. Some of these come up against Casal's objection that women are often subjected to different labor relations than those that may be considered dominant in a society. Casal, 2020, p. 324. This is a question that does need clearer resolution than I am able to give here, especially given the fact that delineating relations of production will be important in ascertaining whether or not some of the predictions of chapter 7 hold. However, I do believe it can be resolved. I expect the resolution is that the dominant relations are those which society is built around. Occasionally other relations may exist, but when they are not minor exceptions their will either be in a dependent relationship (see footnote 137), or a functional relationship. The latter may help explain Casal's observation. Women may be forced to perform household labor in a way that differs from the dominant relations, but this latter labor exists to perform the function of reducing the costs of sustaining laborers in the dominant relations by forcing women to perform much of this labor for free.

[265] See for instance Hindess and Hirst, 2018, p. 283; Althusser and Balibar, 2015, pp. 473-479; Haldon, 1993, p. 52; and Trotsky, 2004, pp. 190-193. Here I am rejecting Balibar's notion of a distinct "transitional" mode of production in favor of the view favored by the other authors mentioned here that even in transitional states one mode of production is dominant, even if its dominance is being challenged. In Trotsky's case this is not stated explicitly but merely illustrated by virtue of the fact that even in the transitional state that he takes the Soviet Union to be, one mode of production is indeed dominant which is why a social revolution would be necessary for a return to capitalism while moving forward to socialism would only require a political revolution.

possible. If Cohen is right that these are the only stable relations possible then this strongly limits the possible relations that may succeed each other. In moments of transition from one set of relations of production to the next, it is possible that there could only ever be one set of relations which increases the development of the forces of production. If slavery, feudalism, capitalism and socialism (and primitive communism) are the only possible relations of production then there is a case to be made, for instance, that capitalism was the only possible set of relations that could replace feudalism (socialism not having its necessary conditions met and slavery being an earlier mode of production whose limits had already been met). This allows, therefore, for a stagist view of historical materialism where the existence and exclusivity of the different stages is explained. And for the purposes of determining whether or not the new set of relations is optimal, it allows us to argue that the new relations are de facto optimal, since they are effectively the only option.

In the ensuing discussion I will draw a distinction between the relations of production defined broadly and the subcategories of this set of relations of production. For this I will use the term “type” for the broad set of relations and “subtype” for the different forms that this set of relations can take. To illustrate, slavery is a type of relations of production, while a system based on chattel slavery would be a subtype. There is a lot of room for deviation within a subtype. Two subtypes could differ in terms of the exact way their labor relation plays out. A subtype overwhelmingly based on chattel slavery, would be distinguished from a subtype overwhelmingly based on indentured servitude, or from a subtype where chattel slavery and indentured servitude are both widespread means of extracting surplus labor. In spite of these differences, however, all would be under the slavery type of relation. Similarly, types might also possibly be distinguished by other salient differences outside of the wage relation, for instance. This allows for different subtypes of capitalism despite the fact that there only appears to be one form of labor relation in capitalism. Free market capitalism could be distinguished from more state driven capitalism for instance.

Each type relations of production includes quite a lot of different possible subtypes. The optimality I am discussing is optimality of the type and not the subtype. The relations of production known as "slavery" may be optimal but that does not mean, that chattel slavery, or indentured servitude, or any of the other forms of labor possible under the category of slavery are necessarily optimal. Which one is optimal in a given context will likely be dependent on more immediate geographical, historical, and social factors.

Therefore, my claim is that there may exist only one type of relations available in any given transition. There will generally, if not always exist, multiple subtypes within this type that may be adoptable. "Slavery" may be the only type of relations able to succeed primitive communism, but this leaves room for it being any of the possible subtypes of slavery. Some subtypes may be able to be ruled out as immediate successors, due either to inaccessibility, or inability to develop the forces of production to a greater extent than the previous relations at this point in time. But there may still be many subtypes available at any given juncture. Some subtypes of slavery will be able to develop the forces of production to a greater extent than others, and as such they will be more likely to spread. As such, the subtype which develops the forces of production most optimally will be most likely to spread, but that is all that can be said. Societies will likely tend towards the optimal subtype, but whether they reach it or not is another question.

Moreover, unlike transitioning between types of relations of production, changing between subtypes of relations does not require a social revolution. It is easier to change between subtypes of a same type of relation of production than to change between two types. Changes in subtype will often be brought about as a response to conquest or social upheaval, but they do not require nearly as radical a change in society.[266] Perhaps most crucially they do not require a significant change in how the ruling class operates vis a vis immediate producers (though they may involve a change in

[266] Perry Anderson's transition from feudal-estates monarchy to absolutism would be a good example of such a transition for instance. The system remained fundamentally feudal, but in many ways functioned quite differently. Anderson, 2013a, pp. 18-19, 40-41.

who composes this class). Be it as chattel slaves, debt peons, or indentured servants, masters will still own those who labor for them. As such, changes between subtypes will likely be more common and effected more quickly than changes between types. This is important since it means that there will be competition between subtypes throughout the period of dominance of a type of relations of production. I discussed above how it is possible to get locked into a suboptimal type of relations of production, but this will not be the case for subtypes. Rather competition between subtypes will be more akin to competition for more efficient superstructures mentioned in the last chapter. They will be able to occur while the relations of production are not fettering the forces of production, which is not true for changes in types of relations.

This means that there will be a process of selection for the optimal subtype occurring as the type of relations develops. However, this is all that can be said. Societies will tend to adopt the optimal subtype of relations, but it is likely that some will be able to hold on to slightly suboptimal subtypes, especially if they happen to have other advantages that may compensate for the small disadvantage or isolate them from competition somewhat. Additionally, it is likely that the optimal subtype will change as the forces of production develop, meaning that the previously optimal subtype may not have had time to fully spread before it becomes suboptimal relative to another.

However, even if there is a case to be made for the optimality of a type of relations of production along the lines mentioned above, I will not pose optimality as a condition for the emergence of new types of relations of production. While this view might entail that optimality obtains de facto, it does not entail that optimality is a condition of the emergence of new relations of production. The type of relations which emerges is optimal not because it must be, but because it is the only one available which develops the forces of production to a greater extent than the currently existing type. While it might be true to say that all new types of relations will necessarily and always be optimal, it is not true that being optimal is a *condition* for their emergence. Rather

they are optimal only by virtue of the fact that they develop the forces of production to a greater extent than the old relations and that no other alternative type could develop the forces of production to a greater extent than the old relations in this moment. Were there to be two types of relations which might allow greater development of the forces of production than the ones in crisis then, as mentioned before, it would be possible for either to spread and become dominant (though the optimal type would be the most likely to do so).

Additionally, this argument for optimality requires that only one new type of relations of production be available to succeed the old ones in any give social revolution. If both slavery and feudalism might have been possible as successors to primitive communism, then there is no inherent reason we should expect optimal relations to follow the decline of hunter-gathering. This version of optimality would therefore need to be accompanied by an analysis of why only one type of relations would be possible in each of these cases, or perhaps why relations of production are only compatible with a range of levels of development of the forces of production that overlaps at most the range of only one other type of relations. This is perhaps defensible, but not necessary to societal selectionist historical materialism.

In fact, there is a decent argument to be made that slavery and feudalism are both appropriate to the stage of development between primitive communism and capitalism. Slavery and feudalism bear clear advantages in terms of their ability to develop the forces of production relative to primitive communism, and capitalism has clear advantages in this regard as compared to slavery and feudalism. However, it is not clear that slavery develops the forces of production significantly less well than feudalism (which is usually considered to be the later of the two relations of production historically).[267] Though these are two distinct sets of relations of production, as outlined

[267] In fact, the catalyzing event that brings about feudalism according to Marx involves a significant destruction of means of production involved in the collapse of the Roman empire, as opposed to a development thereof. Marx and Engels, 1975b, p. 34.
There has been some debate among Marxist scholars about the distinctiveness of slavery and feudalism's ability to develop the forces of production. Robert Brenner for instance argues that all pre-capitalist relations lacked a rational incentive towards development of the forces of production. Brenner, 1986, pp. 27-32. Perry

above, it could nonetheless be that they are historically interchangeable, and broadly suited to develop the forces of production in the juncture between primitive communism and capitalism.[268] For the moment I only wish to raise this as a possibility. Determining whether or not feudalism and slavery were indeed both simultaneously possible relations of production would require an analysis of the ways in which they would or would not be compatible with various levels of development of the forces of production that existed over the course of the period. There is not space for this analysis here. However, the fact that slavery experienced a resurgence as feudalism was being transformed to capitalism suggests that slavery was compatible with even some levels of forces of production available in the latest stages of feudalism.

Therefore, while it might be the case that new types of relations of production that become dominant will always be optimal, this does not mean that optimality is a condition of their emergence. As such, I will reject the optimality thesis as a necessity for societal selectionist historical materialism. All that is required is that the current relations be fettering the development of the forces of production relative to the emergent relations.

This chapter therefore concludes that the relationship between forces and relations of production is such that as the forces of production develop, they will eventually come into conflict with the relations of production. Relations of production are compatible with a limited range of levels of development of the forces of production and so when the development of the forces of production hits the end of this range for one set of relations, these relations become a fetter on their further development. However, this conflict, if resolved in favor of the forces of production,

Anderson on the other hand argues that feudalism did in fact provide a greater impetus towards the development of the forces of production than slavery. Anderson, 2013b, pp. 132-133, 135.

[268] It may even be that slavery as a dominant mode of production has existed only very rarely. According to John Haldon "feudalism […] can be understood as the basic pre-capitalist mode of production in class societies. It coexists with other modes, of course, but the set of economic relationships which marks it out has tended historically to be dominant." Haldon, 1993, p. 64.

does not necessarily result in new relations of production that are optimal. They will likely be optimal, according to societal selection, and perhaps an analysis of forms of relations of production could yield and argument that they always will be. Either way however, it is not *necessary* for a set of relations to be optimal in order for them to become widespread.

However, this left one problem for socialists unresolved. While capitalism may be limited in that it could not become dominant at past levels of development of the forces of production, we have not shown that this is true for future ones. Indeed, some have argued that selectionist historical materialism, may even entail that capitalism will continue to be dominant.[269] Addressing this problem, of the end of capitalism and the rise of socialism, will be the topic of this next chapter.

[269] Laibman, 2008, pp. 97-98.

# Chapter 5: Societal Selection and the Transition to Socialism

The previous chapters have focused on the past. In this chapter, however, I will take a brief look at what societal selection might indicate about the future. Historical materialism cautions us that no matter how stable capitalism might appear now, it too may eventually come into conflict with the development of the forces of production and therefore be replaced by something else. However, as was mentioned briefly last chapter, it is still possible that a set of relations of production such as capitalism may be compatible with all greater levels of development of the forces of production. To show that capitalism eventually comes into conflict with these forces is something that itself must be argued for. The purpose of this chapter is to make this argument and to show how a societal selectionist historical materialism might account for the rise of socialism.

Although this chapter is oriented towards the future, its goal will be to indicate possibilities, not make predictions about the future. I will argue in chapter 7 that societal selection does make some predictions, but these are generally either predictions about the past, and those that do concern the future do not specifically ensure the rise of socialism. The only predictions societal selection makes as regards the future is that forces of production will tend to develop and that old relations of production such as capitalism will eventually fetter this development and be replaced by a new set of relations of production. And even this prediction contains the same caveat of any other prediction, that forces outside of the scope of explanation of the theory do not interfere with these tendencies.[270]

Rather, the main purpose of this chapter is to answer the challenge that this understanding of historical materialism does not provide an adequate account of the transition to socialism. Carling already faced criticism on this front for his selectionist historical materialism and this criticism could

[270] See Chapter 6 of this work for a discussion of these sorts of exceptional events.

just as easily be applied to societal selection.[271] Were it to be the case that societal selection could not provide an account of the rise of socialism, this would be a major blow to its credentials as a socialist theory. It might still be worth investigating, as it might still be correct, but it would be difficult to qualify it as a socialist theory if it could not provide a path to socialism. The purpose of this chapter is to show not only that societal selection can account for the rise of socialism, but indeed that it has a number of reasons to expect it.

While it might not seem very important to lay out some of the ways in which socialism *might* be able to win out over capitalism, the purpose of this chapter is in part to try to make a future society beyond capitalism seem like a more realistic possibility. The view that modern liberal capitalism is the end of history may have fallen out of fashion, but the fall of capitalism still often feels like a distant, if not impossible, event.[272] While the modern world may have strife, and events since 2008 have caused many to question capitalism, few explicitly propose an alternative and even fewer agree on what that alternative might be. Even now, alternatives to capitalism can feel like unreal utopias, with no real path available to reach them or make them possible. In this chapter I will attempt to show the ways in which modern capitalism is at least partially providing the groundwork to make a different society a much more tangible and viable reality.

Given this goal, this chapter does not go into detail about what socialism might entail specifically. Beyond the definition provided in the last chapter, that socialism is a system wherein immediate producers own the means of production and their labor power, little will be said about socialism here.

[271] Laibman, 2008, pp. 97-98.
[272] This is the feeling sometimes described as capitalist realism, and is encapsulated in the famous phrase that "it is easier to imagine the end of the world than the end of capitalism." See Fisher, 2009.

## 1) Introducing the Problem

A criticism made of both Cohen's and Carling's views of historical materialism is that they do not provide a compelling mechanism for the transition from capitalism to socialism. As was mentioned last chapter, Levine and Wright argue that Cohen does not have access to the traditional means of arguing that capitalism will eventually end.[273] They take these to be Marx's arguments for the declining rate of profit and increasing amounts of crises that face capitalism the further it develops. Levine and Wright claim that Cohen cannot really appeal to these arguments since they rest on the labor theory of value, which Cohen rejects. Nor is Cohen's rationalist argument adequate to explain the transition between relations of production, as I've argued in previous chapters. As such Cohen lacks a convincing means of arguing that capitalism will be replaced by socialism instead of enduring indefinitely.

David Laibman provides an additional criticism, directed specifically at Carling, that is perhaps even stronger on this point. Because Carling relies on a competitive model, he may be able to explain why capitalism arose, but he struggles, according to Laibman, to provide a basis for the end of capitalism. This is because his view infuses the competitive logic of capitalism into history more broadly. Competition is capitalism's strength, and it is extraordinarily good at competing. Competition permeates most if not all aspects of life under capitalism and everything about it appears to be geared towards competing. This entails, as Laibman puts it, that a competitive model is one where "all roads lead to capitalism".[274]

Underlying both Levine and Wright and Laibman's critiques is a view of capitalism wherein capitalism will always be more competitive than socialism. Levine and Wright assume that without capitalism imploding and becoming increasingly crisis ridden socialism would never be able to

[273] Levine and Wright, 1980 pp. 60-61.
[274] Laibman, 2008, pp. 97-98.

compete with it. And Laibman's critique is only effective if socialism truly cannot outcompete capitalism. If it can, it does not matter if there is something capitalist about the selectionist view, it still predicts that eventually capitalism will fall. But this assumption is held by more than just the critics mentioned above.[275] Even Cohen appears to take this assumption on board. He argues that the "distinctive contradiction of capitalism" is that capitalism is very strongly biased towards using advances in forces of production to increase productive output instead of increasing leisure time or making labor less burdensome. [276] This suggests that for Cohen the decisive factor in the rise of socialism is not the fact that it allows for greater development of the forces of production, but rather that it allows for developments of the forces of production to satisfy human need to a greater extent.[277]

To be clear, the view of capitalism as the epitome of competitiveness does not entail that capitalism will be able to endure indefinitely through the future. Instead, the claim is that capitalism will be able to remain at least competitive with socialism no matter how much the forces of production develop. Many who appear to believe this also believe that socialism may or will eventually replace capitalism, but that it will do so regardless of whether or not it is more competitive.[278] Conversely, the claim that capitalism will eventually become less competitive than socialism as the forces of production develop does not entirely rule out the possibility that capitalism may be able to remain in place throughout the whole future of humanity. First of all, it may be able to do this if the rest of the future of humanity is very short, such as in the case of a nuclear holocaust, or if catastrophic events delay the development of the forces of production at levels at which capitalism is still competitive until the end of humanity. Second, it may be possible that capitalism is able to develop such totalizing control over humanity that it is able to prevent new

[275] See for instance Van Der Veen and Van Parijs, 2006, pp. 6-8.
[276] Cohen, 2000, 303-317.
[277] The idea that the expansion of freedom and leisure time is key to the rise of socialism is also present in Cohen, 2000, pp. 204-206.
[278] As was just noted, this is the case for Cohen. It is also the case for Levine and Wright, and Laibman. Levine and Wright, 1980, p. 67; and Laibman, 2008, p. 100.

socialist societies from emerging or enduring in any situation. This will generally involve science-fiction-like scenarios involving unprecedented universalized and unbreakable levels of societal control over the whole of humanity and allows no level of development of the forces of production at which such control might be weakened. This may be possible in theory, but it is a very tall order in practice.[279]

On the face of it, the assumption that capitalism will always be more competitive than socialism appears tough to dispute. Indeed, capitalism's competitive ability is impressive. The rate at which it increases productive ability is one of the most remarkable things about capitalism when compared with older relations of production. Capitalism has shown a staggering ability to innovate and adapt to new technologies and conditions, and it is rather difficult to imagine this ending.[280] One of the major socialist criticisms of capitalism is how ready it is to sacrifice almost anything on the alters of competition and profit. One of the major appeals of socialism on the other hand is that people would not need to overwork themselves for the sake of surviving in the competitive market. How then can we imagine that socialism might be able to win out against capitalism in a competitive situation? How can we expect it to be able to harness and mobilize greater extra labor than a system that seems virtually synonymous with efficiency and competition?[281]

[279] Even in science fiction imagining such scenarios is difficult. The world of Orwell's 1984 would arguably qualify, but few other science-fiction works do in spite of the modern popularity of the dystopian genre. Generally, this is because there are either alternatives present or there is still some amount of room for technological progress and development of the forces of production, which could provide opportunities to reshape society.
As such more realistic futures are not able to stifle technological progress fully. Peter Frase's exterminism for instance may be a nightmarish society, but It doesn't preclude the possibility of technological progress. In fact, as Frase notes, exterminism is essentially communism for the rich. Frase, 2016, pp. 121-123. This at the very least leaves open the possibility of generalizing this state of affairs to everyone, as the situation of the rich in this scenario is no longer dependent on their exploitation of the poor. And the more the forces of production develop, the more possible, or the easier such an extension of the life of plenty becomes.

[280] Marx readily and frequently points out capitalism's impressive ability to develop the forces of production and its ability to adapt. "The bourgeoisie cannot exist without constantly revolutionizing the instruments of production" Marx and Engels, 1996, p. 487. "Modern industry never looks upon and treats the existing form of a process as final" Marx and Engels, 1976c, p. 489.

[281] Although, we should also perhaps be wary of overstating capitalism's efficiency. See Graeber, 2018.

To answer this question requires returning to the notion of fettering. If capitalism is fettering the forces of production relative to a socialist alternative, then socialism will eventually be able to gain this competitive advantage. Of course, I have already noted that there are additional barriers that new relations of production need to overcome, and for socialism it will be no different. It does not suffice for there to be a small advantage in favor of socialism, the relative fettering will need to reach a high enough level to overcome these barriers, or these barriers will need to be overcome by other means. Eventually though, as capitalism fetters the forces of production relative to socialism, the extra labor potential of socialism will increase to the point of being able to overcome whatever countervailing factors exist. This sets the stage for the possibility of social revolution.

How then can capitalism fetter the forces of production relative to socialism given the immense flexibility of capitalism? There are three ways we might expect relative fettering to come about as time passes and the forces of production develop: 1) The internal dynamics of a set of relations of production lead to a breakdown in their ability to develop the forces of production further; 2) the nature of the forces of production becomes such that the prevailing set of relations of production becomes less able to develop the forces of production than an accessible competitor; and 3) the new set of relations become possible, or more competitive, in light of new technological developments which enable it to function more smoothly or more effectively. Typically, we might see some or all of these to occur as a new set of relations of production emerges to replace an old one. And, as I shall attempt to show, there are credible arguments that illustrate how all these factors might play a role in ending capitalism. In fact, there is reason to believe that these processes are already playing out before our very eyes.

## 2) Internal Contradictions of Capitalism

The notion that capitalism will collapse under its own internal contradictions is perhaps the most recognizably Marxist of the three processes outlined above. Classically, Marx argued that capitalism was inherently infused with a tendency of the rate of profit to fall.[282] This falling rate of profit would precipitate increasingly frequent crises that would pave the way for socialism. There are quite a few ways in which this might provide conditions favorable to the emergence of socialism. These crises might cause greater dissatisfaction with capitalism, hamper capitalists' ability to combat socialism, and make the alternative of socialism more attractive. While all of this would likely be a part of the actual process of transition to socialism, for the purposes of societal selection this poses a different problem for capitalism. An increasingly crisis prone capitalism is a capitalism that is increasingly unable to continue to develop the forces of production. The less able it is to function normally, the less it will be able to continue to develop the forces of production, and the lower the bar is for socialism.

This argument therefore allows socialism able to supersede capitalism not through any virtue of its own, but rather due to the failures of capitalism. This makes it particularly appealing for

[282] I will not discuss here the arguments for the tendency for the rate of profit to fall, or for capitalism's increasing crises in any depth here. Rather I am interested in examining what these arguments entail for the possibility of the rise of socialism should they be true. However, as a brief overview, there are three main arguments used to claim that capitalism contains a tendency to undermine its own profitability. The first, generally attributed to Marx, is that the increasing use of machinery in capitalism (which offers short term competitive advantages) entails that labor power becomes a smaller portion of the overall cost of producing commodities. And since labor power is the source of profit this means that on the whole profit will become a smaller portion of the overall cost of commodities in the long run, thereby entailing a lower rate of profit and increasing crises as capital searches for other ways to make money. Marx and Engels, 1998, p. 210-211; Hilferding, 2007, Chapter 17; Mandel, 2002, pp. 38-40; and Harvey, 1982, pp. 176-179 (although Harvey himself opts for a somewhat modified view of this thesis later in his work). The second is that capitalist accumulation requires constant expansion into new markets. As these markets eventually begin to run out capitalism begins to have difficulty finding consumers for its still increasing production leading to crisis. Luxemburg, 1951, pp. 359-361, 365-367, 416-418. Finally, the third argument is that capitalism tends towards monopolization due to the competitive advantages of large companies. Monopolies, however, have a lesser interest in developing new technologies thereby reducing the development of the forces of production causing stagnation. Lenin, 2010, Chapter 8; and Schumpeter, 1994, pp. 131-134, 156, 162.

those who do not believe that socialism could be competitive with capitalism on its own terms. If capitalist crises are severe enough, socialism does not need to be competitive, it merely needs to be relatively crisis free in a context where its opponent is not.

As regards societal selection, so long as there is an internal tendency of capitalism to become less competitive as it develops the forces of production there are opportunities for socialism to have an advantage with regards to extra labor. The amount of extra labor that socialism will need to be able to harness in comparison with capitalism becomes lessened in situations of crisis. This can help to balance out the barriers that exist against any new set of relations of production being able to be competitive against others. But for this to be a sustainable change it is important that capitalism not only have a temporary disadvantage with regards to extra labor, it needs to be a continuing one. If a socialist society emerges in a period of crisis, but is not able to develop the forces of production at least on par with capitalism once the latter emerges from a crisis then capitalism will eventually regain the extra labor advantage and supplant the emergent socialist society. This is why it is important for the classical Marxian argument that there is a general tendency of the rate of profit to fall and for an increase in the frequency of crises. Capitalism must reach a point at which its ability to develop the forces of production further is stalled on a more permanent basis, assuming such stalling is necessary at all for the emergence of socialism. In this situation, a new socialist society will be able not only to emerge, but endure, because it will be able to develop the forces of production to a greater extent than capitalism.

Therefore, there are two different possible roles of internal crises in this view. The first is that they provide the moments in which success against the old set of relations becomes possible despite the inherent advantages of being the incumbent dominant system. The allows for some analysis of the immediate conditions under which the new system might be able to emerge. A system having crises at all opens up opportunities for easier emergence of new relations of production. As an example of this kind of argument, the periodic demographic crises in feudalism

are often argued to have played a major role in giving capitalism the opportunity to emerge. [283] And given the difficulties posed to a new set of relations of production mentioned last chapter, it is likely that socialism will similarly need to take advantage of moments of crisis of capitalism.

However, there is a second, more ambitious, role that crises could be argued to play. Crises may not merely create an opening for socialism to be competitive with capitalism. They may also be the major factor, or even the only factor, causing capitalism to become a fetter on the forces of production relative to socialism. In this line of argument, the increasing crises of capitalism cause capitalism to break down to the point that it becomes a fetter on the development of the forces of production relative to socialism.[284] As these crises increase, capitalism will eventually reach the point where it fetters the forces of production enough that socialism will be able to overtake it, no matter how poor socialism is at developing the forces of production. So long as they are consistent and intense enough, crises may be able to give socialism the persistent extra labor advantage it needs in order to outcompete capitalism.

This view of capitalism collapsing under its own internal contradictions is often taken to be the canonical Marxist view of the collapse of capitalism. It is certainly often thought to be well corroborated in Marx's writings as a major component of his thought. However, what might seem unsatisfactory about this argument taken alone is that it does not require anything from socialism. All that is argued for here is the collapse of capitalism. This means that there does not seem to be any reason, if this account is taken on its own, that socialism should be what replaces capitalism. It could just as well be any other set of relations of production. Some may be comfortable with this. This sounds a lot like the phrase, mistakenly attributed to Engels by Rosa Luxemburg that "Bourgeois

[283] On Feudalism's crises and their role in the emergence of capitalism see Carling, 2002, pp. 114-116.
[284] Importantly, the major addition in this second role of crisis is not the fact that crises increase in frequency and intensity (which may also be held by those who believe that the only main role of crisis is to provide an opportunity for new relations to emerge and flourish). Rather the key difference is that, in this second view, crises are a crucial factor in causing capitalism to fetter the forces of production in the first place.

society stands at the crossroads, either transition to socialism or regression into barbarism."[285] However, the problem is deeper than this. For the choice to involve socialism at all, socialism needs to be a viable alternative in the first place. But if the only argument we can muster for it being such an alternative is that capitalism will eventually become crisis ridden enough that it becomes viable then we are only saying that it is as viable as any other mode of production. There is presumably a point at which capitalism could become crisis ridden enough that even feudalism of some sort might be able to develop the forces of production to a greater extent. Why is the choice between socialism and barbarism?[286] Should the choice in fact be between socialism, barbarism and feudalism? What about slavery?

Rather, I take Luxemburg's phrase to be underlining the importance of political action. While there is reason to believe that socialism is the main viable alternative to capitalism, it cannot come about without political action. And if this political action fails to occur, capitalism could collapse into something worse.[287] This will be discussed in more depth next chapter, but for now suffice it to say that the availability of socialism as a replacement for capitalism has yet to be explained and that an argument for the collapse of capitalism does not entail that socialism will be the set of relations that replace it.

There is a possible class-based answer to this. It could be argued that all of these alternative modes of production are theoretically possible, but that they are limited by the classes that would

[285] Luxemburg, 1919, p. 18. Luxemburg's attribution of this phrase to Engels has puzzled scholars since Engels does not appear to have written anything that could be easily paraphrased into this sentence. Ian Angus has developed the most persuasive account of the origin of this phrase. He believes she is paraphrasing Kaustky, and that since she was in prison at the time of writing this, she was unable to check where the phrase came from. Indeed, as Luxemburg herself notes, the phrase had become very commonly used and its exact origin may therefore easily have been muddled. Luxemburg's attribution of the phrase to Engels therefore represents more of an educated guess that turned out to be incorrect, but that she was in no position to double check. Angus, 2014.

[286] Barbarism here appears to represent collapse of Luxemburg. It is "the triumph of imperialism and the collapse of all civilization as in ancient Rome, depopulation, desolation, degeneration – a great cemetery". Luxemburg, 1919, p. 18.

[287] See Streeck, 2016, p. 57. What Luxemburg appears to have in mind is something similar to what Frase describes as exterminism. Frase, 2016, pp. 120-143.

potentially be able to institute an alternative. Some new form of feudalism may be possible in theory, but there is no class with the power to transform society which would institute such a system. Socialism on the other hand has the working class. This is an acceptable response, if accompanied by the thesis that capitalism is becoming increasingly crisis prone, but not one that I find completely convincing. It requires assumptions that would be quite difficult to defend, such as that rentiers, or perhaps even capitalists, would not have the class power or coordination to institute some sort of high-tech version of feudalism or slavery.[288]

As such, an account of the rise of socialism that is based purely on the crises of capitalism is possible. However, I find it unsatisfactory for two reasons. First, it requires some rather difficult to defend claims given the messiness of history. And second, it appears to give no real role to the virtues of socialism in its own ascent. Instead, I propose that for socialism to be well situated to take advantage of the crises of capitalism, it would need to be shown that socialism does in fact have something to be said for it with regards to the development of the forces of production.[289]

## 3) Relative Inability to Make Use of New Forces of Production

If a set of relations of production is faced with new technological developments that it is unable to make use of and develop as effectively as an alternative, this can also constitute fettering of the forces of production. This is the line of inquiry most strongly suggested by the 1859 Preface.[290] Feudalism gives way to capitalism not only as a result of its own contradictions, but because it is unable to make use of and develop emergent technologies such as machinery in a way that

[288] Such as the system of rentism that Peter Frase discusses. Frase, 2016, pp. 69-90.
[289] This is also Cohen's view. Cohen, 2000, p. 204.
[290] Marx and Engels, 1987d, pp. 263-264. In particular "At a certain stage of development, the material productive forces of society come into conflict with the existing relations of production".

capitalism can.[291] The existing relations become unable to unlock the full potential of a new technological development causing them to become a fetter if an alternative is available which can.

Some contemporary authors claim that capitalism is reaching this point with information technology. Paul Mason and Aaron Bastani argue that the information revolution is precisely the sort of technological development that capitalism is unable to make use of fully.[292] While they may be overstating their case, the basic idea is worth exploring as a possible example of capitalism being inefficient with regards to information.[293] Even if the information revolution may not be the downfall of capitalism, it is useful as an illustration that capitalism is not indefinitely mutable, flexible, and able to adapt itself fully to all new technologies, and that there are some domains in which socialism might have a clear advantage in terms of fostering the development of the forces of production.

While relatively new in some ways, the Mason-Bastani argument is based on some older arguments about capitalism's inefficient use of information.[294] Capitalism has constantly needed to restrict information to be able to make a profit from it. Traditionally this has taken the form of patents, either on techniques for producing goods or services, or sometimes on the designs for the goods or services themselves. Capitalists need to make the knowledge they produce commodified and restricted to have any incentive to produce it in the first place. Were all the techniques of capitalist firms freely shared, individual capitalists would not be able to make a profit out of making their production more efficient, as any innovation they made would be matched by their competitors. This creates the rather obvious inefficiency that only those owning the relevant patents, or those paying royalties to them, will be able to make use of the most efficient machines,

[291] "The hand-mill gives you society with the feudal lord; the steam mill, society with the industrial capitalist". Marx and Engels, 1976a, p. 166.
[292] Mason 2016; and Bastani, 2019.
[293] Christian Fuchs for instance makes the point that the information economy is more complex than Mason suggests. Fuchs, 2016, pp. 234-237. Bastani spends much of his book going into detail about various technological advances and their future trajectories in ways that might strike many as overly optimistic. Nonetheless, neither of these critiques fully undermine the point that capitalism appears to be inefficient when it comes to information relative to what socialism or communism could achieve.
[294] They both draw significantly from Rifkin for instance. Rifkin, 2014.

techniques and processes for producing goods, farming, mining, etc. without risking patent violation.[295] This means that, at any given point, only a small portion of producers are able or allowed to produce in the most efficient manner. Additionally, the restriction of access to this information makes it more difficult to innovate on top of previous innovations. If a corporation is not able to access the innovations of their competitors due to patent regulation, then they will not be able to build on that innovation, but will instead need to start from scratch until they are able to buy access to the patent or the patent expires. In fact, this inefficiency is significant enough that much of the research in capitalism must be performed by states as opposed to corporations. Corporations' contributions are often found more in the realm of making something marketable. They are much better at innovating than discovering, which is why most of this section discusses innovation rather than scientific discovery.

While capitalism needs to restrict the flow of information, this is not true of socialism. Since there is no need to make a profit from information in socialism, there is no need to restrict its use once knowledge is created. As such, in socialism production can be performed everywhere with the greatest technological knowledge available, so long as the resources required to do so are available. There may be issues in making use of this knowledge, knowing how to make a state-of-the-art machine is not useful if you don't have the resources or specialists to make it, but with regards to diffusing knowledge socialism is very effective. This is because socialism does not require that the means of production, including knowledge, be privately owned, and thereby restricted in their use.

The main additions of the Mason-Bastani argument seem to be that they note that information is becoming increasingly important as a factor of production and as a product, and that information is now able to be shared at effectively no cost. Books and newspapers require materials for each new unit. But spreading information on the internet requires effectively no marginal cost.

[295] Even Friedrich Hayek criticized this aspect of patents. They artificially restrict the spread of knowledge and create effective monopolies. Hayek, 1948, pp. 113-114; and Hayek, 1960, p. 39.

Obtaining a print book requires this book to be manufactured and uses raw materials. Downloading an e-book merely requires a negligible amount of energy. The same is true for designs, patents, or any other information used in production. Capitalism is unable to make full use of this potential since it needs to restrict information to be able to make a profit from the production of information. Socialism on the other hand does not have this problem and therefore it is able to make full use of the possibilities afforded by the near infinite reproducibility of information in the age of the internet.

This inefficiency becomes more important as information becomes an increasingly important component in production. Some of the more mundane examples would include the increasing use of computers and machines in all sorts of processes of production, but it is possible that the influence of the information revolution is even more widespread than that. As the scope for robotic production increases, the programs used by these robots become a greater and greater factor in production. Similarly, these authors claim that developments of gene therapies and artificial meats could make medicine and food production respectively more dependent on the various techniques and knowledge required to perform such feats.[296]

Additionally, information is increasingly becoming not merely a factor of production, but the product itself, in the form of music, apps, computer software, personal information gathered for the sake of advertising, etc.[297] Such products have negligible costs of reproduction, and so would be able to be reproduced for free by anyone with access to them, were it not for anti-piracy laws. As it stands, even with these restrictions such sharing occurs frequently, and in cases where these restrictions don't apply entire institutions can spring up to share information. These institutions are generally upheld by some combination of volunteer labor and labor funded by donations. Both play

[296] Mason, 2016, pp. 164-169; and Bastani, 2019, pp. 36-40.
[297] Mason, 2016, pp. 116-120.

a major role for instance in the functioning of Wikipedia, arguably the most famous institution for massive free online information sharing.[298]

This recognition of increasing importance of information entails some significant consequences for historical materialist theory that were not implied by Mason and Bastani's predecessors. Earlier arguments about information show the ways in which capitalism has always had inbuilt limitations to its ability to innovate that were not applicable to socialism. It could often form part of a critique of capitalism, or a defense of socialism as a set of relations of production which can foster innovation. However, by noting that the importance of information is *increasing* the statement carries implications that it did not before. It means that capitalism's restriction of information is becoming increasingly stifling to production. Conversely, it means that socialism, which does not need to restrict information, is becoming more and more advantageous. This is a competitive asset for socialism as it means it will be able to make use of its most developed technologies economy-wide and not just where patents allow. This should allow it to mobilize extra labor and thereby be competitive with capitalism. And the importance of this asset will increase the more information becomes preponderant in the production process.

So far, in this example, capitalism is not clearly fettering the development of forces of production, but rather their use. Socialism would be able to make more efficient use of information, but this is not the same as to say that it would be able to develop the forces of production to a greater extent in an information economy. In fact, this is generally the argument for patents. It may be inefficient when it comes to the use of information, but it gives people and corporations an incentive to innovate. This incentive may motivate people to innovate who otherwise might not have done so, thereby increasing the development of the forces of production.

[298] Mason, 2016, pp. 128-129; and Wright, 2010, 194-199. Remarkably, Wikipedia's error rates compare favorably to more established sources. Wright, 2010, p. 3.

It might seem like the natural step from here would be to enter the murky terrain of the debates around socialism and its ability to foster discovery and innovation. However, these debates miss the issue which is important for the purposes of this discussion. Most Marxist thought accepts, and in fact even expects that capitalism was for most of its history better suited to develop the forces of production than socialism would have been. The important question therefore is not whether capitalism in the abstract is better at innovation than socialism in the abstract, but rather whether the forces of production are changing in a way that increases socialism's ability to develop them relative to capitalism's ability to do so. What is important is the trend. If we can say that socialism is becoming more advantageous as a means of developing the forces of production, or that capitalism is becoming less so, then this establishes a trend whereby socialism should eventually be more capable of developing the forces of production than capitalism.

If the trend is that production relies to a greater and greater extent on information, then this does seem to establish an advantage for socialism when it comes to developing the forces of production. Information goods can only be improved by someone who has the information accessible in the first place. As patents and trade secrets restrict the accessibility of information this entails that many who might have been able to innovate if given access to the correct information are no longer able to do so. Additionally, as material barriers to the spread of information become virtually non-existent due to the ability to spread information via the internet (as opposed to requiring paper, ink, delivery systems, etc.) the barriers and costs imposed by patents become a much greater hindrance to such an ability to develop new technologies. It might not have mattered that information was restricted by patents if it couldn't materially be provided to everyone anyway without exorbitant printing and delivery costs. Now that information can be provided to everyone with internet access for effectively no cost, the restrictions of patents become more burdensome to the process of innovation. As these trends continue, capitalism's need for information restriction becomes more and more burdensome in the face of socialism's lack of such a need.

Whether or not Mason and Bastani are right about the importance of information in future production, the example of capitalism's difficulties making efficient use of information in production illustrates that capitalism is not endlessly innovative and competitive. Like relations of production that preceded it, capitalism has some inherent flaws and limitations, and its use of information is clearly one of them. At a certain point, the forces of production will develop in such a way that these limitations become fetters on development of the forces of production. If one follows the Mason-Bastani argument, this is in the process of happening at this very moment, even if it is unclear exactly how long this process will last. However, even if one doesn't agree with Mason and Bastani, their argument serves as a useful illustration of how a new forces of production might come into conflict with capitalist relations in spite of the fact that capitalism appears so endlessly adaptive and innovative.

Looked at from a societal selectionist standpoint, the Mason-Bastani argument requires some further elaboration before it can be seen as allowing a transition to socialism. If we take the advantage of more developed forces to be their greater ability to mobilize extra labor and thereby compete with others, more efficient use of information does not straightforwardly translate into such an advantage. The problem is that, while a socialist society might be more innovative than a capitalist one, it is not clear to what extent this will be able to translate into a competitive advantage. After all, this advantage in innovation comes about precisely because it shares its innovations freely. To illustrate this, imagine a scenario with a socialist and a capitalist society in competition with each other. In this scenario the capitalist one will simply be able to take the innovations of the socialist one, and attempt to guard its own. A socialist society which shares its information freely with its citizens would not realistically be able to safeguard its information from its competitor. It seems on the face of it, therefore, that a corporation in the capitalist society would be able to use all the innovations of the socialist society as well as any it made of its own. The socialist society on the other hand would not necessarily be able to access the innovations in the capitalist one since they could be well guarded secrets by their corporations.

However, the capitalist situation in this scenario is much more difficult than it initially appears. Since it is only profitable to innovate when you can expect to restrict access to your innovation, the fact that a society exists where your information might easily be spread without consequences significantly weakens the capitalist incentive to innovate. A corporation that invests into research must also invest into controlling the spread of the results of this research so as to ensure that the information does not get out at all. Any single leak in this situation would likely be spread immediately to the socialist society, at which point other competitors would also have easy access to it. And given how reproducible information is in the age of the internet, avoiding such leaks would be extremely difficult. It would be much easier and cheaper for them not to invest in research at all and then seize on to whatever innovations they can draw from the socialist society. And if this is the incentive then a capitalist society that is competing with a socialist one will likely innovate to a significantly lower degree.

Additionally, as information becomes a more important factor of production capitalism begins to develop other inefficiencies. To illustrate this, imagine what society might look like further down the line in this process. Science fiction already contains some examples of this, most famously Star Trek's replicators. Replicators are machines that can transform energy into matter. The only two inputs required are enough energy and the pattern this energy needs to be arranged into the object desired. Here information, the pattern, is key to the process, and while labor may still be involved in producing the required energy, none is needed to produce consumer goods once the replicator itself has been made.

A capitalist society using this technology is very difficult, if not impossible to sustain.[299] There are two reasons for this. The first is that much of their profits would be based on the sale of two products: energy and patterns. The production and sale of energy should be straightforward enough.

[299] Cohen and Wright use the "Shmoo", a creature based on a cartoon by Al Capp, to illustrate effectively the same problem. See Cohen's "Against Capitalism" lecture (https://www.youtube.com/watch?v=yA9WPQeow9c); and Wright, 2000, chapter 1.

The production of this energy would likely require some amount of labor, if only in the supervision and maintenance of whatever machines are producing this energy. And people could be charged based on how much energy they consume. However, the major part of their profits would more likely come from their licensing the use of the replicators as well as the patterns used to produce various items. This requires a tight control over knowledge and information that may not be enforceable. The information itself would need to be tightly guarded from hackers, replicators would need to be tightly controlled and any unauthorized production or use of replicators detected and prevented. Additionally, non-profit production of patterns would need to be illegal and repressed. A Wikipedia of blueprints would completely undermine profitability. Even assuming this information restriction could be achieved to enough of an extent to allow for profitability, it would require some amount of labor, likely a very large amount, to enforce. This would give any competing socialist society an extra labor advantage since it would not need any of the unwieldy bureaucracy that this form of capitalism does.

However, despite how expansive this system of repression would likely be, a replicator-based capitalist society may also face a second problem: effective demand. This society would require the labor of creative workers to design the patterns, lawyers to litigate pattern ownership, marketeers to make one company's patterns stand out over others, and enforcement officers to detect and limit illegal use of replicators and patterns.[300] Add to this the engineers required to supervise and maintain energy production and service sector workers and this should cover most or all labor performed in this society.[301] Would this be enough to ensure that there will be enough effective demand in this society? Would enough people have jobs to pay for the licenses and patterns required to use replicators to sustain themselves? Given how much western economies

[300] Frase, 2016, pp. 83-90.

[301] Most modern service sector workers would likely still be needed in a replicator-based capitalism. Replicators can't take care of and teach children, clean spaces, repair plumbing or electrical circuits, etc. Even services such as restaurants may persevere, as they do in Star Trek, in spite of the fact that replicators can make cooked meals. Since I include service sector work in the labor that would likely need to be performed, my ultimate conclusion on the effective demand problem is more equivocal that Frase's. Frase, 2016, pp. 86, 88.

have moved towards service sector jobs without facing an insurmountable effective demand problem it may seem plausible that the answer would be yes. However, this assumes that the service sector jobs themselves will not become automated. Given that many strides are being made today towards automation of these jobs, it seems very possible that many service sector jobs will also be automated by the time we develop replicator technology.[302] Whether this will create an effective demand problem remains to be seen, but it is far from impossible. And if this technology does create an effective demand problem, then a capitalist society at this level of development of the forces of production would suffer increasing crises and unrest which would, as discussed in the previous section, give socialism an extra labor advantage.[303] The difference between the last section and this argument is that these crises and unrest are a consequence not of capitalism's internal tendencies, but of the nature of the forces of production.

Whether or not one agrees with this line of argument, information and the information revolution provide an illustration of the fact that capitalism has limitations to its ability to develop the forces of production. The information revolution may or may not be the end of capitalism. It may be that information is not a significant enough factor to allow socialism to gain the upper hand. But it does show that capitalism is not able to develop all forces of production perfectly efficiently relative to socialism. It opens up the serious possibility that the forces of production have reached or will reach a point at which socialism is able to develop the forces of production to a greater extent than capitalism, in the same way that capitalism was able to develop machinery to a greater extent than feudalism.

## 4) Technology as Enabling Socialism

[302] Frase, 2016, pp. 86-88.
[303] Frase, 2016, pp. 89-90.

The dominant relations of production might be in collapse, and they might be limiting the further development of new forces of production, but this will not cause a social revolution unless another set of relations of production is practicable. Additionally, beyond being theoretically practicable, it must be practicable in such a way that it is able to compete with the old set of relations of production. To quote Gramsci, it is possible that "the old is dying but the new cannot be born".[304] However, here the problem is not the political difficulties posed to a new set of relations of production (that problem will be considered in the next chapter), but the practical difficulties of running it.

Marx himself posed one problem along these lines. Socialism requires the capacity to produce abundance. Otherwise, any attempt at socialism would merely result in want being generalized, and the relative destitution of members of society would result in a struggle for necessities which would engender a return to some form of class society.[305] Without the ability to produce sufficiently, socialism is not a sustainable social system. But exactly how much productive capacity is necessary for socialism is rather unclear. Establishing such criteria could be a very interesting project, but I do not have the space to embark on it here. In particular, such criteria would allow us to establish whether or not socialism would be feasible in given countries or groups of countries without others joining the revolution and supporting them. This would not necessarily prohibit revolutions in countries that do not meet this requirement, but it would mean such revolutions would need to be aware of their urgent need for other revolutions in countries which have greater productive capacity.

As another possible illustration of this phenomenon, in *The People's Republic of Walmart*, Leigh Phillips and Michal Rozworski argue that many modern multinationals are showing in practice

[304] Gramsci, 1999, p. 556.
[305] Cohen, 2000, p. 206.

what might be debatable in theory: that planning on a large scale can be done very efficiently.[306] This is meant in part as a response to the socialist calculation debate, but their more general point is that modern multinational firms are already performing some of the sorts of economic planning that many socialists believe to be crucial to socialism.[307] By developing more effective managerial techniques and information technology, multinational firms are removing many of the logistical hurdles to their own ability to plan, thereby making socialist planning easier as well.[308] Philips and Rozworski argue that firms such as Amazon or Walmart function as vast distributional networks which are not governed by internal pricing mechanisms. Such distributional networks show the ability to plan resource allocation in a very efficient manner. In fact, when such firms do attempt to develop internal markets, as Sears did, they become less, rather than more, efficient.[309]

Phillips and Rozworski's book is particularly useful as a response to Hayek.[310] Hayek's "information objection" rests on the notion that price mechanisms provide information that would otherwise be inaccessible to socialist planning. However, as Philips and Rozworski show, Walmart, Amazon, Google, Facebook, Uber and many others gather all sorts of non-price information that could be and are used in planning. "Big data" collection, our social media information, our past consumer choices, input costs at all levels of production, etc. are used by these corporations to calculate various aspects of production and distribution in order to maximize profit.[311] And it is on the basis of this information, and not of price, that firms such as Amazon distribute goods among their warehouses, even to the point of being able to redistribute goods in anticipation of demand.[312] The way they do this is by devising solutions that are "good enough" as opposed to being perfect.

[306] Philips and Rozworski, 2019.
[307] For some of the core contributions to the socialist calculation debate see Von Mises, 1990; Lange, 1936; Lange, 1937; Hayek, 1945; Hayek, 2000; and Schumpeter, 1994.
[308] Some more recent contributions to the socialist calculation debate have tended to emphasize the role of information technology as a means of solving the calculation problem. See Cockshott and Cottrell, 1993; and Joseph, 2017.
[309] Philips and Rozworski, 2019, pp. 39-46.
[310] Even critics of their work, such as Snowdon, don't appear to contest that they provide an adequate response to Hayek's objection. Snowdon, 2019, pp. 288-289.
[311] Philips and Rozworski, 2019, pp. 70, 84-86, 212.
[312] Philips and Rozworski, 2019, pp. 77-86.

Perfectly calculating what will be demanded, where it will be demanded, how much of it will be demanded would be extraordinarily difficult. But as modern multinational corporations show, solutions that are good enough approximations, requiring significantly less information and calculation power, work nearly just as well and are extremely efficient.[313]

If anything, this planning would be even more effective in a socialist society. First, a socialist planner does not need to worry about and adapt to the changes made by competitors, suppliers, and, if applicable, the corporations that consume their product.[314] A capitalist corporation, even a large multinational one, has this additional and often difficult to predict variable of how other independent corporations will act. This is not a variable that a socialist society need to account for since its means of production are collectively owned and not owned by independent private producers that are in competition and therefore not sharing their production and marketing strategies with their competitors.

Second, socialist societies would be able to plan democratically. And, as Philips and Rozworski argue, planning is most effective when democratic. Firms that have adopted flatter hierarchies and given their workers some day-to-day operational decision making have seen their productivity increase.[315] Having people participate in planning allows it to work much more efficiently, since planning often requires information from people about their preferences.[316] In fact, the strength of the planning many of the corporations mentioned previously is based on their ability to coax information out of individuals.[317] A democratic system could not only create systems for

[313] Philips and Rozworski, 2019, pp. 80-82, 210.
[314] Schumpeter, 1994, p. 186.
[315] Philips and Rozworski, 2019, p. 69.
[316] Philips and Rozworski, 2019, p. 213. This is in fact one of the major reasons Hayek believed planning to have an information problem. The required information is often decentralized and in the hands of individuals. Hayek 1945. Democratic participation allows this decentralized information to be used in a way that allows for centralized democratic decision-making. Philips an Rozworski use Chile's Cybersyn project under Allende as an example of what rudimentary democratic planning could look like. Philips and Rozworski, 2019, pp. 214-232. Interestingly, the point that popular participation is key to planning appears to have been anticipated by Trotsky (although Trotsky sees this as being done through market mechanisms). See, Trotsky, 1932.
[317] Philips and Rozworski, 2019, pp. 70, 84-86, 212.

collecting information similar to those employed by these corporations, they could receive other information voluntarily given by participants in the democratic planning process. Not only does democracy in planning help ensure that it is done for the benefit of all rather than the few, but it is also simply more efficient.[318]

The point of this is not necessarily to say that the socialist calculation problem is solved. Rather, for our purposes what is important is that Philips and Rozworski's work shows another way in which the development of the forces of production may allow for socialism to be competitive with capitalism. They argue that as the forces of production develop, as new information technology and management techniques become possible, the fact that most forms of socialism require economic calculation and planning (at least to some degree) becomes less and less of a liability and more and more of an asset.[319] This is therefore another way in which socialism becomes more and more competitive with capitalism as the forces of production develop.

There are, therefore, three ways in which the development of the forces of production can pave the way for socialism to replace capitalism. Capitalism may become more crisis ridden as it develops the forces of production due to its own internal dynamics, new forces of production may arise which socialism is more capable of developing than capitalism, and socialism may become more less complex and costly to implement. All three occur, develop, or become possible as the

[318] This is, according to Philips and Rozworski, the main reason that the USSR was inefficient. The problem was not planning, it was authoritarianism. Philips and Rozworski, 2019, pp. 36, 161, 173-174, 178-182.
[319] The extent to which this is applicable to market socialists is debatable and likely depends significantly on the market socialist in question. Lange, for instance, considered the problem of socialist calculation salient enough to his view to write a very influential two-part response to Von Mises and would likely have found Philips and Rozworski's conclusions helpful. Lange, 1936; and Lange 1937. However, Lange's view is debatably market socialist, as he proposes pseudo-markets where prices are more of an accounting tool than means of distribution. Lange, 1936, pp. 55 and 61-64. More recent market socialists have proposed more clearly market based solutions to socialist calculation and may find Philips and Rozworski less helpful. See Meade, 1965; Roemer, 1994; Roemer; 2017; Corneo; 2017.

forces of production develop. And all three enable socialism to become competitive with capitalism. It is through some combination of these three processes that a societal selectionist account would explain the rise of a new set of relations of production such as socialism. The increasing difficulties faced by the old set of relations, the greater ability of the new relations to develop the forces of production at their current stage, and the greater accessibility of the new relations can explain the ability of new relations of production to replace the old. This is true even if the old relations are remarkable for their ability to compete as is the case for capitalism.

However, this only allows us to determine when a new set of relations would be able to persist and spread at the expense of the dominant relations. Explaining the actual circumstances of the emergence of new relations require explanations that are outside of the scope of societal selection. What these explanations might be, and how societal selection might relate to them, will be examined in the next chapter.

# Chapter 6: Class Struggle, Contingency and Agency

At first glance, there appears to be a contradiction in Marx's view of the unfolding of history. On the one hand, the view he expounds in the '1859 Preface' argues that the forces of production create the material conditions for major social change.[320] On the other, Marx was adamant that historical change in class societies was primarily brought about through class struggle, to the point that "the history of all hitherto existing society is the history of class struggles".[321] At first glance at least, it seems difficult to see how both of these can be true at the same time. What happens, for instance, if a class has an interest in stifling the development of the forces of production and it prevails in the class struggle? Will its class victory allow it to keep stifling the development of the forces of production? Or will the forces of production manage to develop despite the outcome of this class struggle? And if it's the latter, how and why does this occur?

This problem parallels another apparent contradiction within Marx's work. Marx simultaneously believed that socialism and communism were historical inevitabilities, and that the point of his theories, and his political activities, was to change the world.[322] But if socialism and communism are the next stages in history, and if Marx has been able to show this through his theory of history, why fight for political change at all? Surely, if Marx is correct, this change should come about whether or not he, or any other particular individual, engages in political action or writes political theories. So why, on an individual level, should anyone take on the risks and hardships of the kinds of political action that would be required to bring socialism about? Why did Marx, at

[320] Marx and Engels, 1987d, pp. 263-264.
[321] Marx and Engels, 1976c, p. 482.
[322] "[The bourgeoisie's] fall and the rise of the proletariat are equally inevitable", Marx and Engels, 1976c, p. 496. "The philosophers have only *interpreted* the world in various ways; the point is to *change* it", Marx and Engels, 1975a, p. 5, emphasis in original.

significant cost and risk to both himself and his family, spend so much of his life actively fighting for and advocating for the change he believed to be coming?

Finally, there appears to be a contradiction between such an overarching theory as the historical materialism of the '1859 Preface' and the contingency of history, the effects of human agency, and the variety of causes that operate in the making of historical events. History might have unfolded differently if it weren't for people such as Alexander the Great or the two storms at sea that arguably foiled the two attempted Mongol invasions of Japan in 1274 and 1281. Most recently the COVID-19 pandemic that is sweeping the world is likely to have lasting repercussions for years to come. How important their effect on history was, or how exogenous they actually are, is debatable. However, they have had some effect on history and a theory such as societal selection could, at best, only predict that a similar event or person playing a role in history was possible or likely. It might perhaps be able to say that someone like Alexander the Great would have eventually emerged, that the turbulent seas near Japan would have made maintenance of Mongol presence there untenable anyway, or that a pandemic similar to COVID-19 was bound to break out eventually given the current context. But it certainly could not predict that they would happen exactly as they ended up happening. And the difference in effects of COVID occurring now, twenty years ago or twenty years from now may be quite significant historically. If all of this is true, if such contingent events influenced history so, how can an analysis based on the development of the forces of production purport to explain the course of history? It seems at first glance that such a historical materialism is too liable to be interrupted by human agency or contingent factors.

In spite of these tensions, I maintain that Marx and Engels' views were not as contradictory as they might appear. I will argue in this chapter that there is no tension between the account of history discussed in the Preface and the other factors mentioned above. Instead, they are indicative of different and complementary levels of analysis of history. Forces of production can be determinative of the broad course of human history (absent major exogenous shocks) without them

being crucial to explaining particular events, even the key transformative ones. By putting historical materialism in societal selectionist terms it is possible to show why this is.

In fact, while I will be focusing on historical materialism and societal selection, my analysis here need not be limited to historical materialism. The question of how causal explanations of human society can coexist with the apparent complexity and contingency of human history, and with human agency poses a problem to the social sciences beyond Marxism. As such, much of what I say here will have a much wider applicability for those who both believe that there are causal forces at work in human society and accept that human agency and apparent contingency make it either impossible to model accurately, or at least too complex to do so realistically.

Finally, as I will be discussing how societal selection can accommodate a variety of other factors that are argued to play a role in history, my discussion of these factors, and the arguments made for deeming them important historically will generally be quite cursory. This is inevitable due to the large variety of explanations I will be discussing, but their elucidation in detail is not necessary to make the main point of this chapter: i.e. that societal selection leaves room for many forms of explanation of social events due to being a structural explanation of change that is largely agnostic about the proximate causes of change.

## 1) Proximate and Structural Causation

Perhaps the key distinction in this chapter will be the distinction between proximate cause and structural cause. By the term proximate cause, I mean more than merely the event or element immediately preceding another in a causal chain. Rather, a proximate cause in the sense I am using it is any event which brings about the specific change in question. My flipping a light switch causes a light to turn on, even if this is done through the intermediary of circuitry. Structural causation, on

the other hand, describes a situation in which a structural arrangement can be used to explain certain outcomes, generally because they allow, provide incentives for, or otherwise increase the likelihood of those outcomes. An electoral system which allows privately funded electoral campaigns may be said to structurally cause candidates to be more likely to have views which align with those of the wealthy. This allowance has not caused any one candidate to be elected or to lose an election, but it has created a structural situation where those with money are able to ensure that candidates that support their views and interests have greater funding and are more likely to be elected than those that aren't. In a situation where a candidate who otherwise would not have been elected won an election due to their greater funding, they would have won the election because some number of wealthy people gave them money. This is the proximate cause and the immediate explanation of the election of that particular individual. However, it would not be wrong to say that this individual was also elected because of the electoral finance rules. These rules structurally caused this election outcome by making it possible for the wealthy to influence the electoral outcome in this way in the first place.

Importantly for our purposes natural selection is a structural explanation, as well as being a functional one. There are two levels to biological explanations, the level of natural selection and the level of genetics. Natural selection is meant to explain the broad evolution of species, while genetic analysis is meant to understand what makes DNA vary. In a very influential argument, Ernst Mayr draws a similar distinction, between what he calls proximate cause and ultimate cause (later renamed to evolutionary cause) in biology.[323] He illustrates the point by showing that both are answering different questions. Genetic analysis explains *how* species evolve, natural selection

[323] Mayr, 1961; and Mayr, 1993. I choose to use the term structural cause here as evolutionary cause is inappropriate for the social explanations under discussion. Rather, these evolutionary or ultimate causes in social theory are, in my view, structural causes. Little, 1991, pp. 103-107. Little discusses primarily how individuals' actions could be partially explained by their structural context, but what Little says could also apply to how other social phenomena can be explained this way.

explains *why* species evolve.[324] In the terminology I am using, genetic analysis is the proximate cause, and natural selection the ultimate cause, of the evolution of species. [325]

I submit that a similar distinction, between proximate cause and structural cause is important in the social sciences as well.[326] In particular I will argue that class struggle, human action, and contingent events constitute proximate causes of historical events while societal selection constitutes a structural cause. As a consequence, there will be some independence of these two types of causes even though a complete historical explanation would require both. Societal selection explains the development of the forces of production, and changes in relations of production by appeal to the fact that societies have, since at least the earliest class societies, been in some form of competition with each other. It remains agnostic about the proximate causes of these transformations, and instead appeals to the structure within which they arise in order to pinpoint the direction these changes will take in the long run. To be clear, I am not asserting the absolute independence of societal selection from proximate causes. Proximate causes may have influence on exactly how societal selection plays out, may delay or speed up the process, or in other ways effect it. However, the process of societal selection will still take place regardless of these proximate causes, and it is not ultimately important for societal selection why it is that a change occurs, merely that it does.

However, for societal selection to be able to be agnostic about proximate causes it must be able to account for them, to make room for them in its explanations. It must be possible for them to take different directions, or even run counter to societal selection, without undermining its explanatory power. If societal selection required us to assume that humans would not act in a

[324] "Why" here is meant in the sense of "how come". Mayr, 1961, p. 1502. It is worth noting that Mayr includes many other biological practices along with the transfer of genetic information in his examples of "how" causes, since he is discussing biology more generally while I am merely discussing natural selection.
[325] Indeed, most modern biologists recognize this distinction at least in some form. The most influential version is the Mayr distinction already mentioned. Mayr, 1961. However, others have posed slightly different versions of the distinction. See for instance Haig, 2013; Calcott, 2013; and Nesse, 2013.
[326] Others such as Diamond and Cohen have also drawn similar distinctions in the social sciences. Diamond, 2017, pp. 78, 83; and Cohen, 2000, p. 148.

certain way, this would entail a claim about proximate causes. Societal selection would therefore not be able to be independent of proximate causes and need to claim some, likely quite contestable, restrictions on their operation in history. As such, showing that societal selection can truly be agnostic about proximate causes will require a more detailed analysis. This will be the focus of most of the rest of this chapter. In particular, I will focus on showing societal selection's compatibility with both social proximate explanations (for which I will mainly focus on class struggle, given that it is the favored Marxist one), and with individual proximate explanations.

## 2) Societal Selection and Class Struggle

In the social sciences, social events are often explained using what I call social proximate explanations. These are proximate explanations that appeal to the existence of social phenomena that are not necessarily reducible to individuals. Or, to put it differently, they are proximate explanations that appeal to social forces or phenomena. The claim that the emergence of the Protestant ethic is at least in part responsible for the rise of capitalism is a social proximate explanation. They are not structural explanations as they do not appeal to the prevailing structural conditions, but rather to one or more specific forces or phenomena in order to explain a social event.

The main claim I wish to make in this section is that social proximate explanations and structural explanations are in fact complementary. The reason for this is that they perform different but complementary roles in a social explanation. Structural explanations, such as societal selection, explain the conditions under which social change is possible, likely to occur, or likely to succeed. Societal selection primarily seeks to explain what conditions are necessary for a social change to be likely to succeed and spread, instead of fading into obscurity. Social proximate explanations on the

other hand explain the immediate social processes which brought about social change. The former explains why the conditions were, or were not, ripe for social change, the latter explains the social forces that caused the social change to occur.

In Marxist scholarship, social proximate explanations are commonly, at least in part, based on a class analysis.[327] Such an analysis finds the major cause of changes in social structure to be explicable in terms of class and class structure. The rise of capitalism, for instance, might be explained by the rise in power of the bourgeoisie and the swelling of the ranks of the proletariat. These changes in class structure have their own explanations, of course, but a class-based explanation situates them as being responsible for the rise of capitalism and therefore as the most important factors to be explained in order to explain this rise. Explanations of existing class structures can take multiple forms, but usually their explanation is historical. Existing class structures are explained by the outcomes of previous class struggles, as well as other major social events and trends which impacted the balance of class forces.

This is the form of explanation generally taken by Political Marxism, for instance, as exemplified by Robert Brenner and Ellen Meiksins Wood.[328] Both take the "laws of motion" of relations of production such as capitalism and feudalism to be fundamental to the dynamics of

[327] When Marx himself discusses and attempts to explain specific historical events, as opposed to broad historical trends, he tends to emphasize class struggle, as in the *Eighteenth Brumaire*. Marx and Engels, 1979. In this text, the forces of production may make the occasional appearance (if not in name), such as when he discusses cotton and wool manufacture and their influence on the economies of England and France. Marx and Engels, 1979, pp. 174-175. Additionally, they are arguably at play in the background of the text. I suspect that Marx would explain the importance of wool and cotton in the economies of both countries as a result of the development of the forces of production, as they provided raw materials to industries that had become crucial due to their relative ease to concentrate in manufactures and mechanize. However, they certainly do not play a central role in Marx's account in the Eighteenth Brumaire. This central role is accorded to class and class struggle, as Marx himself explicitly stated ("[…] I demonstrate how the *class struggle* in France created circumstances and relations that made it possible for a grotesque mediocrity to play a hero's part". Marx and Engels, 1979, p. 57, emphasis in original). However, as I will argue repeatedly, there is no contradiction in simultaneously believing that forces of production best explain the broad course of history and believing that specific historical moments are best explained through class and class dynamics. If Marx was arguing about broad structural cause in the 1859 'Preface' and about proximate cause of events in the *Eighteenth Burmaire*, as I believe he was, this allows us to reconcile what appear to be two very different approaches into a single understanding of history.

[328] Brenner, 1976, 1986 and 2007; and Wood 2002.

history and argue that the rise of capitalism was "the product of very specific historical conditions".[329] And for both authors class dynamics and class struggle are key to understanding these laws of motion and to understanding how the specific historical conditions in question led to capitalism.

Class struggle is indeed a crucial component of Marxian analyses of history, especially when it comes to discussing and analyzing political events. When Marx undertook analyses of specific political events, such as his work on the 18th Brumaire of Louis Napoleon, there is generally no mention of forces of production.[330] Marx's analysis instead focuses on class structure and historical context. However, more than this, the crux of the Political Marxist objection is that broader changes, such as changes in relations of production, cannot be explained without a class analysis. Even the development of the forces of production (or lack thereof) is conditioned by class structure, as some class structures may promote such development while others may stifle it. In some class structures development of the forces of production might even effectively be halted due to no major class having an interest in such development. In such situations, it is only when the balance of class forces changes, sometimes in a very specific way, that further development of the forces of production occurs. As I have already discussed, this is roughly Brenner's argument about the birth of capitalism. He argues that pre-capitalist relations did not tend to have an inherent impulse towards development of the forces of production because neither the ruling class nor the immediate producers had much to gain by developing the forces of production. It is only when a very specific balance of class forces is reached in England that capitalism becomes able to emerge.[331]

Societal selection, and selectionist accounts more generally, can incorporate this class analysis into a framework which nonetheless holds the forces of production to hold explanatory primacy. Indeed, Carling notes this as one of the major strengths of competitive primacy.[332] Brenner

[329] Wood, 2002, p. 193. See also Brenner, 1986, pp. 51-53.
[330] Marx and Engels, 1979.
[331] Brenner, 2007, pp. 95-99.
[332] Carling, 1994, pp. 70-71.

may be right that capitalism only emerged because historical circumstance allowed England to achieve a balance of class forces which fostered it. But in the societal selectionist account all this means is that some society, somewhere needs to emerge which has a balance of class forces which will produce a similar effect.[333] And so long as we are in a situation in which feudalism is (relative) fettering the forces of production, we can expect this emergent capitalism to spread and eventually become the norm. As Carling quips "there'll always be an England".[334] Once this "England" emerges its institutions and practices will be likely to spread at the expense of those of feudal societies.

This entails that ultimately the selectionist analysis, like natural selection, is probabilistic. There is some (yet undefined) chance that new relations will emerge, and then another (again undefined) chance that they will spread at the expense of old relations. The latter chance will be decently high, according to selectionist accounts, in a situation where old relations are fettering the development of the forces of production. However, the most important consideration is not the probabilities themselves but the fact that chances for new relations to emerge are continually occurring. There is a chance new relations will emerge at any point, though they are much more likely to emerge in periods of crisis, since periods of crisis tend to produce intensified periods of class struggle and a weakening of the ideological strength of the ruling class. The outcome of such struggles is uncertain, but will likely be different in different societies, as it was in the period Brenner describes. This means there are multiple different chances for a new set of relations to emerge, as many as there are relevantly distinct societies. If, by chance new relations do not emerge in this period of crisis, there will be another chance for this to happen during the next crisis of these relations. This will continue until a new set of relations emerges. Eventually, therefore, the emergence of a new set of relations is highly probable. Even if we assume that the chances of a new

[333] While Cohen does propose something like the proximate/structural distinction that I do, it does not allow him to incorporate Brenner's view. For Cohen's intentionalist explanation, productive forces must explain why a certain class is victorious in class struggle, while societal selection does not need to explain why an upstart class might succeed in class struggle, since what concerns it are the factors which allow the set of relations of production they form to become dominant. Cohen, 2000, pp. 148-150.

[334] Carling, 1992, p. 62. See Carling, 1992, pp. 62-66 and Carling, 2002, pp. 114-117 for the probabilistic argument that Carling makes.

set of relations emerging in any given society to be small, given enough time, enough societies and enough crises, its emergence is all but inevitable.[335]

While much of the debate in analytical circles around historical materialism has concerned class struggle as the social proximate cause of choice, it is far from the only form of social proximate causation that is available to Marxists or social theorists generally. Indeed Marxist theory is often accused of being primarily economistic and not having an adequate account of other social proximate causes, such as race, gender, or culture.[336] Thusfar, I have discussed them as possible inhibitors or enablers of imitation, or as factors that may give extra labor advantage or disadvantage to specific societies. But to leave it at that would be to miss the role these factors often play in social change, again as enablers or inhibitors thereof. These factors can be important proximate causes of social change or causes of resistance to such change. And societal selection treats them as such. It is just as well for societal selection if nationalism and racism were key in the rise of capitalism as it would be if class struggle were key.[337] In fact, the rise of capitalism can be a confluence of factors, and it may have been possible that a confluence of different factors could have brought about a different form of capitalism somewhere else. Ultimately what matters from a societal selectionist standpoint is that the preconditions of capitalism were able to emerge somewhere. Determining what the important factor or factors are in social change is important, and much academic literature is devoted to it. But societal selection can remain largely agnostic of these social proximate causes.

Some critics might argue that as social proximate causes class, race, and gender are being relegated to a secondary position in my analysis as well, societal selection being the "true" or more

[335] Assuming no intervention by exogenous phenomena, or human self-destruction (see "exceptional events" section later in this chapter).
[336] Robinson, for instance argues that Marxism is inherently limited in its understanding of race due to its origins in Western society. See Robinson, 2000, pp. 2, 10, 66. Of course, many Marxists have attempted to treat the question of race as an important one, although whether they have done so adequately is up for debate. See Camfield, 2016, for an overview of the variety of approaches and interpretations that Marxists have taken to the question of race.
[337] Robinson makes the argument that racism and nationalism were critical to the formation of capitalism, and I find his argument on this point compelling. See Robinson, 2000, especially pp. 109-116.

"fundamental" reason for change. However, I would argue that this is misconstruing the relationship between the two. They are more interrelated levels of analysis of a phenomenon than a schema of priority. Explaining a new set of relations of production by its proximate causes is just as valid as explaining it by its structural causes, they simply answer different questions. Proximate explanations explain how a new set of relations of production comes about, societal selection explains why it endures, or why it fails.[338] Any full explanation of the emergence of a new set of relations of production will require both, and no relations of production can be successful without being supported by both. A set of relations which emerges in an unfavorable selectionist context will eventually fail, and a set of relations will not emerge until it is proximately caused.

As such, one of the strengths of societal selection is that it can accommodate social proximate explanations while still maintaining the primacy of the forces of production in explaining the broad course of history. A societal selectionist analysis can explain when new practices are likely to succeed in becoming widely adopted, while social proximate explanations can explain why it was that they were adopted in a specific context. Societal selection is thus able to reconcile the primacy of the forces of production with class struggle, but also with explanations which focus on race, gender, or other social forces which operate in society. Both levels of analysis are part of a complementary understanding of social change. However, while the way it plays out in history will often be modified by social proximate explanations, societal selection's main contentions (the development of the forces of production, changes in relations of production, etc.) can be held without needing a detailed analysis of proximate causes.

[338] Indeed, Mayr takes a similar view with relation to biology. Mayr, 1961, pp. 1501-1503.

## 3) Individual Agency, Contingency, and Innovation

A concern some readers may have, both with historical materialism generally and with societal selection in particular, is that it does not account for the importance of individual or collective agency and contingency to understanding historical outcomes. If the forces of production have explanatory primacy over the course of history, where does this leave human action? It certainly seems historically that there have been moments when an individual or group's decision, or their prowess, was crucial to the unfolding of historical events. Additionally, if the broad course of history is determined by the forces of production does this mean that we as individuals are not free to change it? Why should we fight for revolution if historical materialism tells us that the development of the forces of production will eventually lead us to a new society?

More generally, readers may note, factors that are not explicable in terms of the development of the forces of production may also have an important historical role. This is true for contingent events, or for events which are best explained by appeal to factors other than the forces and relations of production. Destructive events can slow or even set back the development of the forces of production and some of the most destructive events could go so far as to wipe out humanity.

Human agency and contingent causes are both forms of proximate cause. Given this, some of the difficulty can be responded to in the same way as social proximate causes: that had they not occurred where they did, they would have occurred elsewhere, given enough time and enough opportunities. And this is indeed the case for many cases of human agency or contingent cause.[339] Alexander's conquests may have been attributable to the decisions he made, the qualities he had as

[339] This is also a response to the problem of "looping effects"; the ways in which human self-understanding and action can be changed by their understanding of the theories being used to explain those actions. Hacking, 1996, p. 369. Such looping effects may exist, but they affect human action, which is outside of the scope of the theory of societal selection.

a person, or sheer luck. They may additionally have changed the history of many nations. They may even have had repercussions well beyond the actual events. Perhaps Julius Caesar's desire to be comparable to Alexander was a crucial factor in him deciding to cross the Rubicon. However, they did not fundamentally change the ongoing process of development of the forces of production. They may have altered it slightly, slowed it or sped it up. But they did not change the fact that the forces of production tended to develop. Such development would have gone on without Alexander, though perhaps a bit more slowly, as without him the Greeks and Macedonians would likely not have been able to imitate and be imitated by many of the cultures which Alexander's conquests brought him into contact with. Even concerted effort to stifle the development of the forces of production can only really succeed for a limited time in a limited geographical area. There will be other societies, or perhaps future descendants of this same society, which will develop the forces of production again, for whatever reason, and thereby gain an extra labor advantage allowing them to spread their practices.

Similarly, insofar as individual action or contingency are important in changes in relations of production, they can generally be treated in the same way as social proximate causes. They may delay changes, or they may expedite them, but they cannot permanently stop them. Even if we were to say that the French revolution was only possible due to the ideas of Rousseau, or the leadership of Danton, or the flaws of Louis XVI, this would not pose a problem to societal selection. First of all, even if Rousseau or Danton had not existed, it is quite possible that someone else would have been able to provide ideas or leadership of sufficient quality to achieve a sufficiently similar result. And if they had, given the favorable context to those ideas or that leadership, it is quite possible that the revolution would have gone on essentially the same. However, the more important argument for societal selection would be to say that had the French Revolution not come to pass when and where it did, something performing a similar role vis a vis the emergence of the relations of production would have occurred. If we take that role to be the lessening of feudal power over the economy then it might have been another revolution, perhaps in France after Louis XVI, or perhaps

somewhere else, or it might be some other transformative political event that stops short of revolution. Indeed, events performing a similar role to that of the French revolution did indeed arguably happen elsewhere, in the forms of the English Civil War and the American Revolution. More broadly, so long as there are different societies, and so long as these societies have the potential to change, one of the combinations of factors which would allow such change to happen will eventually emerge. Societal selection's contribution is to claim that once it does emerge, it will spread.

However, while it may be possible to say that most individual actions or contingent events would not fundamentally change the development of the forces of production or the transitions between relations of production, this not true for all of them. With the existence of nuclear weapons, for instance, it is possible for one decision to reset the development of the forces of production significantly, or even wipe out the human species entirely. Similarly, a large enough asteroid, or a deadly enough pandemic are contingent events which could have comparable effects. As such, it is not clear that the structural/proximate distinction can allow for such explanatory independence in the case of individual action and contingency.

To further add to this problem, innovation, a phenomenon that could at least be argued to stem from individual action and/or contingency, is of crucial importance to societal selection. As such, I will need to discuss exactly how innovation fits into societal selection in light of the proximate/structural distinction.

Finally, classifying individual action as a proximate cause does not alleviate concerns one might have about individual motivation to participate in revolutionary activity. Societal selection still predicts that new relations such as socialism will come about regardless of whether any particular individuals participate in revolutionary activity. And if new relations would come about regardless of whether any one of us participates in revolutionary activity, why take the risk of participating in such activity at all? Responding to these challenges will require a more in-depth discussion.

*Exceptional Events*

Some events are plausibly disruptive enough to interrupt or end the development of the forces of production. Unexpected natural events could wipe out a significant portion of human infrastructure and population, including perhaps wiping out all books, hard drives, and people who hold certain knowledge, thereby setting back the forces of production to some degree. Such events, if cataclysmic enough could wipe out the entirety of the human population or reduce it to an amount that would be vulnerable to being wiped out by subsequent events.[340]

Additionally, the advance of human knowledge opens up new possibilities for human action having effects that rival world-ending natural events in their scope and destruction. A nuclear bomb, or a genetically engineered disease can be at least comparable in devastation to an asteroid or a freak pandemic. As such, in modern times, the course of development of the forces of production could be disrupted by some human decisions as much as it could by some natural events. Such decisions could wipe out human knowledge in an irrecoverable way, or wipe out humanity entirely.[341]

In the case where some human knowledge is lost but humanity endures, the process of development of the forces of production is not necessarily halted. The next period of human history may consist primarily of rediscovering old knowledge, instead of developing new technology, but the process remains the same. However, such a setback exceeds the effects of social proximate causes or lesser contingent and individual causes in that it does not merely stall the process but actually

[340] Neil Stephenson's novel *Seveneves* contains such a scenario for instance. In *Seveneves*, the moon becomes broken up by an explosion of unknown origin. This results in a rain of moon debris that effectively renders the Earth uninhabitable for centuries to come, leaving only a select group of people alive on an expanded International Space Station. In such a situation what remains of humanity is then vulnerable to being completely wiped out by various dangers of living in deep space. This is just one example of an event that could result in the end of the human species. Many others can be envisioned by science fiction or our own imagination and still more likely exist while being unknown to us.

[341] As Wright, Levine, and Sober note however, technical knowledge is quite difficult to destroy. Wright, Levine and Sober, 1992, p. 81.

sets it back an indefinite amount. There may still be value to societal selection in this context, but it requires an important caveat about the possibilities of such events resetting it significantly. At the farthest extreme, it is possible that a major event may wipe out humanity entirely. If this occurs, of course, societal selection becomes no longer applicable as there is no human society for it to be applied to.

While such caveats should be made, this is not a major blow to societal selection as a theory. Any theories which fall short of a theory of everything require a *ceteris paribus* clause, and it is no different for societal selection.[342] Known possible exogenous phenomena can disrupt the predictions of a research program without this being a major challenge to it.[343] No one would fault a biologist for incorrectly predicting the development of an organism if subsequent to their prediction it were exposed to radiation, or someone tampered with it. The best theories will be able to say something about how such events will affect the subject of their study, often in quite precise detail. Our biologist would be able to say how the level of radiation in question would be likely to affect the organism or, if they knew the nature of the tampering, how this would change its development. Societal selection cannot make such precise predictions, but it would be able to say something about what sorts of things would need to be destroyed in order to set back the development of the forces of production (mainly objects storing knowledge or people with knowledge). It would also predict that development of the forces of production would continue to occur, and may be able to predict something about the pace of this development from the state of affairs succeeding the disaster.[344]

[342] If anything, societal selection, as a law about tendencies, has broader *ceteris paribus* clauses than most. See Little, 1986, p.27.

[343] Completely unknown phenomena, what might be described as unknown unknowns, have a greater impact on a research program since they challenge it to come up with an explanation for this phenomenon. If the program succeeds this becomes a victory for it, if it fails it may become an impetus to question some part of the research program. See Lakatos, 1978.

[344] Additionally, exogenous variables may be able to affect the speed of development of the forces of production. Nolan, 2002b, pp. 166-167. The debate between Levine and Sober, and Nolan generally provides some good discussion about the ways in which exogenous variables do, or do not, influence historical materialism. See Levine and Sober, 1985; Nolan, 2002b, Levine and Sober, 2002.

However, it is not clear that all of the events I have described above are exogenous. An asteroid impact certainly is. But a virus is more or less able to spread based on all sorts of social and political factors, including some which follow from greater developed forces of production or different relations of production. Capitalism, for instance tends to encourage large and dense urban areas which are easy vectors for the spread of viruses. Similarly, the high populations that can be sustained at higher levels of development of the forces of production create more instances in which viruses can mutate to become able to affect humans, or to have greater ability to spread within humans, or to have higher mortality rates.[345]

Additionally, the great destructive power of some human decisions today is a direct consequence of the development of the forces of production. Nuclear bombs are only possible at certain levels of development of the forces of production. The notion of a medieval society being able to make one is patently absurd. Relatedly, the environmentally destructive side effects of modern production are similarly only possible at certain stages of development of the forces of production.

Insofar as they are endogenous, however, societal selection has some ability to explain their incidence. If capitalism or higher developed forces of production increase the chance of a pandemic then this is something that a more developed theory of societal selection, one which pays more attention to the details and consequences of various relations of production and forces of production, could examine. Combinations of forces and relations could be said to have differing probabilities for non-exogenous disasters such as pandemics. Creating an adequate theory discussing this would require a more in-depth discussion of the topic and would need to draw from epidemiology and possibly other fields. As such there is no space to discuss this here.

On the other hand, something could be said about the fact that higher developed forces of production make nuclear apocalypse or environmental degradation more likely: greater developed

[345] See Diamond, 2017, 195-201.

forces of production create greater potential for human self-destruction. The higher our forces develop, the greater this potential becomes, as we become more and more capable of transforming the world around us. So long as our development of the forces of production does not decrease, we will not lose the ability to make nuclear weapons. We can only add to our destructive potential as I am sure we will. However, greater destructive potential does not mean greater chance of destruction necessarily. The fact that we are capable of destroying our planet and ourselves through our weapons or through the side-effects of our production does not mean that we will. To some extent, the explanation for whether or not humanity destroys itself will be exogenous to societal selection. With nuclear weapons in particular human agency is very important in determining whether or not they are used. Insofar as this is the case, these sorts of catastrophes are exogenous and outside of the scope of explanation of societal selection. However, some of the factors determining whether or not technologies which ultimately threaten humanity are used are endogenous to societal selection. Relations of production foster the development of the forces of production and to some extent determine how they are developed. For example, the profit motive, so fundamental to capitalism, does not account for externalities, such as the effect of the technologies it uses on the planet. This means that it will tend to develop the forces of production without much regard for the ways in which this development impacts the environment. There may still be some human action at play here. Could capitalism have used different productive methods to be more friendly to the environment? Could it have even developed the forces of production in a way that would be less destructive to the environment? Answering this question, and determining the impact of relations of production on the probability of human self-destruction more generally, requires an in-depth analysis of relations such as capitalism for which there is not enough space here.

As such, for the purposes of this discussion I will treat the likelihood that self-destructive technologies significantly impact humanity as exogenous, though the extent of their potential impact will be endogenous, as it scales up with the development of the forces of production. Absent

a robust account of how forces and relations of production affect the probability of self-destructive technologies being used, I will take the chances of such not-entirely-exogenous factors to be roughly constant. The only statement that can be made from the point of view of societal selection as described so far, is that the potential for human self-destruction increases as the level of development of forces of production increases. And even for this statement I am currently unable to say by how much one can expect it to increase.

*Innovation*

Innovation is in one way a major factor in a societal selectionist account of history. The development of the forces of production consists in innovations which enhance the productivity of labor. These can be innovations in tools and machines, labor techniques, and means of organizing labor. And yet, despite this importance, I have yet to give an account of how innovation occurs, or what exactly its role is relative to the wider theory. The reason for this is that societal selection can remain agnostic as to how innovation occurs. This is, again, because the process by which innovation happens is a proximate cause for such innovation, whereas societal selection is interested in the structural cause of particular innovations' ability to spread, regardless of how they came about.

However, there is more that can and should be said on the matter, given how crucial innovation is to the development of the forces of production. Perhaps most important is the fact that this first form of explanation, the explanation of how a specific innovation came about, does not provide an explanation of how forces of production develop. People innovate all the time, but explaining how any, or even all, of these innovations occurred does not tell us anything about how forces of production develop. After all, there is no reason to believe from the outset that an innovation will develop the forces of production. Any given innovation may fail to increase

productivity when applied and may often even decrease it relative to other prevailing tools and practices at the time. This is true most obviously for any innovations which do not affect production at all, or innovations that held no merit whatsoever relative to previous tools and practices. It is also true for innovations that may be made for the sake of other values, for which the innovator is willing to sacrifice some productivity. None of this however allows us to explain why forces of production develop. Why do societies tend to make use of innovations which allow for higher levels of productivity the later we are in human history? Explaining how innovations occur to particular people, or to people in general, does not help answer this question for the reasons mentioned above.[346] One might have a little more luck by arguing that human beings tend to innovate in ways which develop the forces of production, but this still does not explain why it is that these innovations are used instead of ones which don't develop the forces of production. Explaining the development of the forces of production, therefore, requires an account of how innovations spread. This is the role structural accounts such as societal selection attempts to fill. They explain the preponderance of these innovations, not their origin.

However, while societal selection may be necessary to explain the development of the forces of production, it is not entirely sufficient. There is one assumption about the process of innovation which must be made: that some form of innovation will occur at all. However, this assumption is relatively modest. It does not even require that innovation be occurring now, (or at the time being discussed) merely that innovation of some sort will occur at some point in the future. So long as some amount of innovation will occur at some point, then those innovations which allow greater development of the forces of production will have a tendency to spread at the expense of those which do not allowing for a tendency for the forces of production to develop.

[346] For an overview of the study of innovation (as opposed to the diffusion of innovations mentioned previously) see Fagerberg, Martin, and Andersen, 2013.

Contradicting this assumption about innovation requires not only that innovation be unable to occur in the here and now, but also that this be true across humanity and forevermore. This would, of course, be the case were humanity to be eradicated entirely, but so long as humanity exists precluding future innovation entirely is exceedingly difficult. One could imagine a world in which an extraordinarily repressive government has taken over the entire world and prevented anyone from implementing any innovations. Even here, societal selection would still be able to predict future development of the forces of production so long as this repressive government might foreseeably lose power in the future. So long as these government loses power eventually, its ability to stifle innovation will eventually fade allowing societal selection to take its course once more. It would take a system that is almost inconceivably stable and stifling of innovation for this process to come to a permanent halt. Alternately, it would take some sort of universal destruction of our ability to innovate, such as perhaps if all of humanity were to upload its consciousness into machines which were incapable of innovating. Short of these rather drastic scenarios, it seems a reasonable assumption that innovation will occur at some point in the future.[347]

As such, a very weak assumption about innovation is all that is required for societal selection to explain the fact that that the forces of production tend to develop *at all*. But explaining the rate of development of the forces of production may require a greater understanding of innovation, and what factors may affect the rate of innovation. Similarly to the rate of imitation, there is some reason to believe that the rate of innovation may increase somewhat with the development of the forces of production. For imitation, increased developed forces of production allowed greater contact between societies and easier spread of ideas. Similarly, greater developed forces of production may allow for greater ease of access to information, and to higher levels of education,

[347] There is an assumption about human nature that guides my confidence that stifling innovation will be nearly impossible, namely that human beings are capable of innovating and that this capacity is not easily taken away from them. I am not certain how one would construct a plausible argument that human beings are not capable of innovating. But it may be possible to argue that I am overconfident in the resilience of such a capacity. However, even if I am overconfident about such a resilience, and removing the human capacity to innovate does not require as drastic means as the two examples I propose here, permanently removing the human capacity to innovate is well into the realm of science fiction dystopia.

promoting greater innovation. However, this effect is more debatable than for imitation, since it may be harder to innovate at higher levels of development of the forces of production given how much knowledge and resources may be required to make the average innovation at higher levels of development of the forces of production. I may be able to innovate a primitive tool with access to nothing more than wood and stones. But innovating in the modern world often requires computers, labs, and detailed knowledge of previous innovations. As such, a simplified model of societal selection may need to take the rate of innovation as a constant, in the same way it may be able to take the rate of imitation as a function of level of development the forces of production. None of this is to say that these processes don't have many other factors that play a role. However, societal selection can be understood without these other factors, and can achieve an approximation of human development by considering innovation and imitation in simplified terms.

*The Impetus for Revolution*

The final issue often posed to historical materialist accounts that I will discuss is the issue of motivation for the revolution. If the forces of production will eventually bring out new relations of production, then why should anyone fight to bring them about? There doesn't appear to be any reason for a historical materialist to feel the need to do anything to help bring about change, let alone brave the risks, changes, and uncertainties involved in political revolutions.[348]

And yet Marx in both his life and writing is extremely clear that this is not the attitude he takes. Marx himself faced many consequences for both his theoretical writing, his journalism, and

[348] Note that I am assuming here that a political revolution is necessary to bring about socialism, or at least that some form of ideologically motivated action is necessary. This problem does not pose itself if the social revolution required to bring about socialism could occur organically, merely by acting as they desire or are incentivized to without ever needing to be acting with the goal of bringing about socialism. I am skeptical of this possibility, but cannot totally rule it out either.

his political activities. He was exiled from country after country. He risked imprisonment, and stood trial for treason, and took many other risks over the course of his life due to his political activities. Nor was he any less vehement in calling for action in his writings.[349] He considered the views he was putting forward as being primarily intended to change the world, not to tell us how it would be changed without our involvement.

The contradiction is essential to resolve if historical materialism, as understood in the societal selectionist manner, is to be considered part of Marxism.[350] Marxism without a call to action hardly seems like Marxism at all. As such, societal selection must be able to point to at least some importance for human action in shaping history. It must be that our action, our adoption of these ideas, may make a difference in deciding whether or not the change we would like to see comes to pass.

This is a distinct problem from the problem of revolution discussed in chapter 4. The discussion in chapter 4 concerned the problem that the gains from revolution will likely not be enough to offset the costs of such revolution.[351] The problem that concerns me right now, however, is that societal selection predicts that historical change will occur regardless of the actions of any particular individuals. Given this, why should any individual who understands societal selection feel compelled to try to bring about societal change?

In response to the problem of transition troughs in chapter 4, I argued that revolutionary motivation is not necessarily rational, and that societal selection is able to account for this fact. At first glance, it may look like I could attempt to make use of this argument here. I could say that revolutions are not rational and therefore it is not a problem that societal selection does not give us a reason to participate in (political) revolution. People will join it anyway for all the irrational reasons

[349] See for instance, Marx and Engels, 1975a, p. 5; and Marx and Engels, 1976c, p. 519.
[350] This is also a problem Cohen felt the need to resolve. See Cohen, 1986b.
[351] This was the discussion of transition troughs. See Przeworski, 1985, especially pp. 176-177; See also, Wright, 2010. The problem of transition troughs will be relevant here, but I will assume it has been solved since I have already discussed how societal selection deals with the problem in chapter 4.

that people join any revolution. Since most people don't spend their time thinking through the implications of theories such as historical materialism, it makes little difference if it tells them that their action does not really matter. They may join it because they feel, incorrectly, that their action in particular is important to changing the world, or because they feel a responsibility to take part, or because they see others doing it and want to be a part of that. However, such a response to the problem is unsatisfactory from a Marxist standpoint. It does not view Marxist theory as containing a real call to action, for those who properly understand it at least. It accepts historical materialism as a theory that "merely interprets the world". It does nothing to help change it. In fact, if anything, provides a reason for those who understand it not to try and change the world.

Nor is the problem of revolutionary motivation resolved by what I have said previously on human action in societal selection. It would be concerning if societal selection had nothing more to say about human agency than that it is a proximate cause outside of the scope of societal selection. After all, this appears to make it indifferent to human action, meaning that a right minded societal selectionist should be indifferent as well when it comes to bringing about large-scale societal change such as a social revolution. Nor is it enough that societal selection allows human action to play a crucial role in bringing about change. After all, this does not tell anyone that their action will be crucial in changing history. If you know that if you don't take the steps to bring about change someone else, somewhere else, and possibly sometime else will do it instead, why potentially put your life, health, freedom, or economic security on the line when you know that even if you don't someone else will?

Societal selection must claim that changes in relations of production will occur regardless of the actions of any particular individual. I have been able to resolve many of the problems above because societal selection does not need to make strong deterministic claims about human action or class struggle, or contingent events. But societal selection also claims that the development of the forces of production will eventually cause new relations to replace old. This will arguably need some

people to take actions to change society, but it does not hinge on any particular people making these decisions. If you don't, societal selection predicts that someone else will. So why should anyone make these decisions at all?

One approach would be to recall that societal selection argues that greater forces allow for greater competitiveness for societies which adopt them, since they allow greater development of the forces of production. This entails that members of a society may wish to adopt practices which develop the forces of production, including relations of production which achieve this, because of this greater competitiveness. Someone understanding societal selection might want to adopt socialism because it allows their society to become more competitive with other societies.[352] This is something akin to a nationalist motivation for socialism, and as such may not be all that attractive to many socialists, myself included. Such a motivation appears to contradict socialist commitments to internationalism, freedom, and solidarity and equality between nations, ethnic groups, and races. However, a desire for competitiveness need not always come from a desire to dominate others. It could just as easily, and arguably even more easily, come from a desire to resist the domination of others. A society that is currently on the periphery of capitalism, which is subject to imperialism, colonialism, or other forms of undesired economic or political outside influence, may be interested in adopting socialism to escape this influence. This was arguably one of the major motivators for the adoption of various variations of "communism" throughout the developing world. The USSR appeared to provide a model whereby societies on the periphery of capitalism could become

[352] In chapter 2 I generally avoided emphasizing this form of motivation very much. For this to be the reason forces of production tend to develop I would need to assume that those changing society are aware of the importance of the development of the forces of production, and that they have the capacity to change society. Neither of these assumptions are very generally applicable throughout history, though when they are, it may be possible that the conscious intent to develop the forces of production plays a role in societal selection. However, for the present discussion, on how someone adopting societal selection may or may not be motivated towards social change, my reservations are no longer applicable. The first assumption, that they recognize the importance of development of the forces of production to competitiveness, can be assumed since we're discussing someone who has adopted societal selection and therefore believes that the forces of production are indeed important. And the second assumption does not apply, since I am discussing motivation for change, and not the capacity to change. I am merely arguing here that someone who adopts societal selection would have this motivation to try to change their society, not that they would be able to.

independent of the influence of capitalism's core economies. As such, societal selection provides some grounding for socialism being able to be compatible with at least a certain kind of nationalism, the nationalism of the periphery. Or, to be more precise, it is compatible for a desire for societal independence, regardless of whether or not the society that one wants to be independent is conceived of in national terms.

Another approach would be to consider revolutionary motivation in a different manner. Perhaps you may recognize that you don't need to be the one to fight for change for it to occur. However, you may still be interested in trying to bring it about because you want to have been a part of making this possible. It may give meaning to your life. You may want to be able to look back on the period of historical change and say that you were a part of it, instead of having sat on the sidelines. You may just want to be part of making the world a better place, even if you know that would have happened anyway. If these are your motivations then historical materialism may provide additional motivation, instead of detracting from it. Historical materialism argues that you have a good shot at changing society in the right circumstances. So long as those circumstances are prevalent, the theory becomes an attractive support for an individual or class's attempts to change a society. It makes what may seem initially to be an impossibly daunting task to be more achievable.

However, while I believe these two responses are valid, they are both somewhat unsatisfactory. The first grounds the motivation for socialism in nationalism, or at least in concern for societal independence of some sort on a geopolitical level. There is nothing in this motivation about socialism itself. If anything, the fact that socialism is the system in question appears to exclude many from taking on this motivation, namely those living in societies which play a dominant role in international capitalism. The desire for societal independence is still tenable as a motivation for socialism, and it may be an important one in many contexts, but it would be disappointing if it were the only motivation that societal selection could propose for socialism.

The second approach mentioned above requires very specific views about the importance of one's own life and legacy. While this may motivate some people, it seems unlikely to motivate everyone. Not everyone is going to be willing to risk material welfare for the sake of finding meaning in struggle or out of fear of looking back on the revolutionary period and being ashamed of one's lack of participation.

The response I find most compelling focuses on the fact that societal selection does not predict when or where socialism will emerge. It says that when it emerges it will spread, and expects it will emerge eventually, but it does not guaranty when it will. As such, the problem posed to our potential revolutionary is not "why change society?", but rather "why change it now?" They can be confident in light of societal selection that socialism will eventually emerge, but they cannot guaranty it will occur here and now. It may just as easily occur somewhere else the next time that a crisis rocks capitalism.

And if the question becomes why "change society now?", the answer becomes a lot clearer. You want to change society now because you believe that you and your loved ones will be better off in a different society. If you want the benefits of a system such as socialism for yourself or your close descendants, it would be of little comfort to you to know that socialism will eventually come about.[353] By abstaining from participating in change, you may ensure, or help ensure that socialism will not come about in your lifetime, or in the lifetime of those important to you. Additionally, participation in revolution now may help avoid dragging out the process of capitalist collapse, thereby minimizing the suffering caused by capitalism as it is in its death throws. This gives a potential moral reason to participate in revolution, as it would reduce human suffering overall for the revolution to occur earlier rather than later. Both of these provide potential basis for motivation

[353] Again, I am assuming here that there is reason to believe that individuals and classes will be motivated to participate in revolution in spite of the costs of such participation. Here the problem is whether or not societal selection provides a compelling reason to participate in revolution at all, as opposed to expecting others to do it instead.

for revolution in spite of the fact that societal selection claims that such a revolution will, eventually, occur.

In his own work on the subject Cohen discusses a similar solution to the one I have just proposed, which he calls the "birth pangs" solution.[354] This solution argues that revolutionaries should want to participate in the revolution in order to speed it up, avoid as much as possible the pain it might cause, and possibly help ensure that the result of the revolution, socialism, comes in their, or their children's, lifetimes. He ultimately finds this solution to be unsatisfactory because it does not "cater to the fact that revolutionary individuals think that, with others, they are responsible not merely for the pace and tenor of the revolution, but for the very fact that a revolution occurs".[355] I do not agree with Cohen if he means this to be a necessary condition for a theory of revolution. Revolutionaries do not need to be correct about their conception of their own importance for a revolution, nor do they need to have fully accepted and adopted Marxism in order to carry out a socialist revolution. However, I do agree that there is something a bit unsatisfactory to a theory which argues that right-minded revolutionaries would not think they are responsible for the occurrence of a revolution.

Thankfully, this objection does not apply to the societal selectionist view of revolution. In this view, revolutionaries are responsible for the occurrence of revolution. Were no one to take up this responsibility over the course of history, no revolution would occur.[356] However, this scenario, in the societal selectionist view, is borderline impossible in the long run (unless the future of humanity

[354] Cohen, 1986b, pp. 66-68
[355] Cohen, 1986b, p. 67
[356] My solution to the problem is similar to the one Cohen ends with, the "good reasons" solution, as it does not claim that inevitability consists in something being bound to happen no matter what people do. However, the reason that people are bound to change society in my view is not because it is rational for them to do so, but rather because they will eventually do so, in some context, somewhere, be their reasons rational or not. Cohen, 1986b, pp. 68-72. Given that the fact that my solution does not require that the reasons be "good" at all, considering it a "good reasons" solution seems like a misnomer.

is cut short).[357] Moreover, in a situation where relations are fettering forces of production, social revolution towards a new set of relations is both attractive and likely to spread once it takes root.

This of course leaves the primary motivation for socialism with the argument for the benefits of socialism. This is outside the scope of the current discussion so I will not address it here. However, by laying out the conditions under which success is likely, societal selection does aid the process of revolution and revolutionary motivation. It provides some guidance as to how and when revolutions might be successful in enduring and spreading. And it further provides an assurance that such an outcome is possible. Given the uncertainties of revolutions, such an assurance is far from meaningless. The more compelling a case societal selection can make for the potential of a socialist society to succeed, the more it can contribute to showing socialism to be a realistic possibility. And the more realistic the possibility seems, the easier it is to feel that the risks one takes for change will pay off. Therefore, while the crux of the motivation for revolution lies in the appeal of socialism itself, societal selection can aid this motivation by showing how socialism can survive and spread.

*Conclusion*

This chapter discusses what I consider to be one of the greatest strengths of societal selection as a theory of history, its ability to make the broad predictions of Marx's theory of history without needing to make strong claims about the detailed unfolding of history. It does not need to deny the complexity of history, the contingency of many historical events, or the historical importance of some human action. It can accomplish this by being an argument about structural causes and not proximate causes.

[357] In this sense, it is also free action, since the probability of change in relations of production, quite explicitly falls short of 100%. See Cohen, 1986b, pp. 74-76.

This is not to diminish the importance of proximate cause in explaining history. As with natural selection, to claim that societal selection obtains regardless of proximate causes is not to say that it can form a complete account of historical transformation. Explaining the transformation of societies requires a deeper understanding of proximate causes as well as structural ones. I have not been able to discuss proximate explanations at anywhere near the depth they deserve, but this is because they are not ultimately the point of this chapter. Rather, the point of this chapter is to argue that proximate and structural causation can constitute two separate levels of social analysis. Societal selection can yield interesting conclusions without needing to rely on specific events occurring or not occurring.

# Chapter 7: Predictions of Societal Selection

In this chapter I will lay out what I take to be the main predictions of societal selection. Doing this has some multiple advantages. It clarifies some of the main points made in the previous arguments and so can serve as a summary of sorts. It identifies what I take to be the key empirical points that societal selection entails, and so can be a helpful tool for critiquing or defending societal selection from an empirical standpoint. But most ambitiously, it serves as an argument for the "theoretical progressiveness" of societal selection.[358]

I view the goal of a successful research program to be making predictions that are vulnerable to evidence and responding to contrary evidence with "progressive ad-hoc" explanations, that is explanations which yield additional predictions which are vulnerable to evidence.[359] My goal for societal selection is for it to be as close as possible to a (theoretically) progressive ad-hoc problem-shift in the Marxist research program.[360] In other words, I intend it to be a theoretical shift which has

[358] For this I am drawing quite heavily from Lakatos' methodology of scientific research programs. Lakatos, 1978. As this is not a work on Marxism and the philosophy of science, I will not go a detailed discussion of the relation between the two. Greater discussion of some of these themes can be found in other works. See for example Sheehan, 1993; and Callinicos, 1985. For now, I will merely note in passing that I find Lakatos to be something of a synthesis between Marxist and Popperian discussions of philosophy of science (and the Anglo-American analytical tradition of philosophy of science generally). His view of science is one that is historical, dynamic, and considers research programs as a whole, as opposed to analyzing individual theories. These are changes that are quite in line with some of the concerns Marxists have had regarding the sciences since Engels. Marx and Engels, 1987a, pp. 22-26. This should perhaps not come as too much of a surprise given Lakatos' own background in Marxist thought.

[359] As Daniel Little notes, historical materialism as expounded by Marx and Engels does suggest a program of research but does not provide a means of formulating clear explanatory hypotheses. Little, 1986, pp. 5-6 and 65-66. One of the goals of societal selection is to allow the formulation of such hypotheses, which could then be tested against historical data, as indeed the claims of any research program should be.

[360] Societal selection is not a research program. This should be clear enough from the fact that Lakatos consistently describes Marxism as a research program. Marxism provides the framework which defines which concepts are important to investigate in societal phenomena and guides any Marxist research in a broad sense. It is perhaps debatable exactly which theories constitute the "hard core" of Marxism, and which form part of its "protective belt" and are thus expendable. But societal selection is certainly part of the protective belt, and not the hard core, of the Marxist research program. Societal selection proposes an elaboration of the mechanisms by which historical materialism functions and proposes what I would consider to be a marked refinement of the Marxist heuristic, but historical materialism remains the core theory. See Lakatos 1978, pp. 4-5, or pp. 178-179, for succinct discussions of what constitutes a research program.

greater empirical content than its predecessors (in this case, the direct predecessors being the views of Cohen and Carling), meaning that it is able to predict a wider scope of phenomena with a greater degree of precision.[361] Generally, and in this case, such attempts to increase empirical content are designed to account for contrary evidence to the previously held view. In the case of societal selection, this contrary evidence is much more general (and often more open for dispute) than in the natural sciences, but both Cohen and Carling ran into some important empirical difficulties that my view attempts to respond to.[362] Therefore, it will be important to examine the predictions societal selection entails. What does societal selection predict? And what evidence would it be vulnerable to? What evidence would require me to either revise societal selection, or call into question the accuracy or interpretation of the evidence in question?

This is the goal of this chapter: to lay out what societal selection predicts as precisely as I am able in order to make clear what evidence would pose a problem to it. This is a difficult task in the social sciences, many predictions of current social scientific theories will be imprecise and therefore invulnerable to evidence, and societal selection is by no means an exception to this. If anything, the fact that societal selection predicts tendencies and not actual outcomes makes precise prediction even more difficult. However, the establishment of a tendency can lead to predictions, as the experiences of natural selection, and even (arguably) of other natural sciences such as physics attest.[363] I believe that I can identify some predictions of societal selection and identify the sort of

[361] Lakatos, 1968, pp. 164-165.

[362] Of course, since we are not discussing a natural science, many of the critiques I am responding to with societal selection are more theoretical than empirical. But both Carling and Cohen did face empirical challenges as well. Cohen faced, for instance, Brenner's claim that a particular configuration of class interests, and not a generalized preference for greater development of the forces of production, was responsible for the transition to capitalism, a claim which he based on the historical evidence available for England, France, and Poland. Carling, similarly, must contend with the fact that spread of greater developed forces of production frequently occurs without actual conquest or market competition taking place, and the fact that the model he describes seems to predict a significantly slower pace of advancement than the historical record. In Carling's defense, I believe he assumed the process of imitation into his theory to some extent. Competition often involves imitation between rivals to remain competitive. However, as he did not discuss it, or the implications and consequences of including it, the theory as he stated it has some significant empirical shortcomings.

[363] Natural selection can make some more traditional sorts of predictions in modern times, with it being possible to study the evolution of microorganisms with short lifespans. However, some of the most compelling evidence for natural selection, and the evidence that led to its widespread adoption as the scientific way to

contrary evidence which would call these predictions into question, as I will lay out below. The predictions I propose may not be exhaustive. I may well be missing some predictions implied by societal selection which could be controverted and may be used to call the theory into question. However, the point of this chapter is not to be exhaustive. Rather I intend to show that societal selection is an addition to the Marxist research program which does entail predictions. Should these predictions turn out to be false this would be a problem for societal selection, but that is the point.

Few, if any, of these predictions will have immediately producible contrary evidence. This is inevitable as concerns predictions about the future, which can only be evaluated when this future comes to pass but may also be true of some predictions about the past. In particular, it may be that we do not currently have the means to gather the data that would be necessary to evaluate whether some of societal selection's predictions hold true. I will discuss the extent of availability of evidence when I discuss the individual predictions. But it is worth noting here that it is not a requirement for the means to evaluate a prediction to be immediately available. What is important, rather, is that the predictions it makes be vulnerable to evidence, not that this evidence be currently possible to gather. The history of natural science is riddled with instances where the most powerful vindications of a scientific research program's predictions were not possible at the time the core theories of this research program were formulated. This was the case for many of the predictions of the Copernican view for instance, which could not be corroborated until the invention of the telescope or even later.[364]

While this chapter argues for the theoretical progressiveness of societal selection, it is of interest even if one does not agree with the Lakatosian view of natural science, or even if one does

understand evolution were not predictions that could be verified in a lab. Instead, the tendency theory is used to make claims that are independently testable, from the existence of missing links such as the Archaeopteryx, to the relative survivability of species with slightly different traits when released in the same environment. See Kitcher, 1982, pp. 59, 80-81. Quantum physics also, arguably, requires the abandonment of precise prediction of particular events in favor of prediction of statistical phenomena. Bernal, 1937, p. 62. This strategy of statistical prediction used by both sciences will be used frequently for societal selection as well in this chapter.

[364] Lakatos, 1978, pp. 183-184.

not view explanation as the goal of the social sciences. What I am offering in this chapter are some predictions I believe to be important enough for societal selection that it would need to be abandoned or revised should they prove to be false. Critics of societal selection are offered here a route to calling societal selection into question empirically. On the other hand, the predictions I offer are also predictions which I believe will carry some amount of weight should they prove to be correct. The importance of each will be discussed on a case-by-case basis, but this chapter does broadly provide a guide to future empirical research that could be used to corroborate societal selection.

## 1) Core Predictions of Societal Selection

Let's begin with the core mechanism of societal selection, the competitive selection between societies for greater developed forces of production.[365] It is the mechanism which defines the set of theories that is societal selection; without which societal selection would not be societal selection. Its key prediction is that forces of production will tend to develop throughout history. So it is with this prediction that I will begin.

The prediction that forces of production will tend to develop is not where I would consider societal selection's novel predictions or "novel facts" to be potentially found.[366] Empirical hurdles

[365] I am not using the phrase "hard core" here to distinguish it from the Lakatosian "hard core" of a research program. However, sets of theories in the protective belt of a research program can also have cores, which are themselves protected by auxiliary theories (for instance, imitation in the case of societal selection).

[366] A novel fact is the prediction of an already known, but hitherto not adequately explained fact. A classic example of this is Copernicus' "prediction" of the already well-established retrograde motion of the planets. It was not that Copernican theory discovered something new, or guided us to search for something new, but rather it turned a fact that for Ptolemaic theory was unexpected and needed to be explained by ad-hoc maneuvers into a fact that followed naturally from the Copernican theory of heliocentrism. See Lakatos and Zahar, 1978. Darwin's own arguments for his theory tended to be predictions of novel facts. He argued that

aside, this prediction is not one that is likely to win over many people even if it is corroborated. In order to constitute a relevant prediction of a novel fact, the prediction needs to be "dramatic". In more precise terms, it needs to be a prediction of something not commonly held to be true, and not easily predicted or explained using other research programs.[367] The idea that there is a tendency towards progress in human society is perhaps one of the more commonly held beliefs in modern societies. Further, this tendency can adequately be explained by rival theories of history without much trouble.[368] Few today would be surprised with the prediction that forces of production will continue to advance.

Perhaps a bit more surprising would be the prediction that forces of production had a tendency to advance even before capitalism. Some academics would hold this to be untrue, and so, if corroborated, it might provide some evidence for societal selection.[369] However, there are still rival theories which would also predict roughly equivalent data. For instance, Adam Smith held the human propensity to barter and truck has provided the impetus for increased division of labor which has itself allowed for the development of human productive capacity.[370] Additionally, as I have already discussed, G.A. Cohen's view also would predict a tendency towards development of the forces of production in pre-capitalist societies. I have argued that societal selection manages to avoid many of the legitimate criticisms which plague views such as those of Smith and Cohen which

---

natural selection explained such phenomena as the global distribution of species, the existence of non-adaptive traits leftover from progenitors, and the existence of invasive species better than the theory of independent creation of distinct species. Darwin, 1907, pp. 367, 423-432.

[367] Lakatos and Zahar, 1978, p. 184.

[368] For instance Adam Smith's view on progress, Hegel's view of history, and Cohen's argument for primacy of the forces of production would all find this unsurprising. The view that history has no grand tendencies might find this to be incorrect for history broadly, but would not find it surprising that development of the forces of production is occurring under capitalism due to the dynamics of capitalism itself. Intermediate views between historical metanarrative and pure contingency may or may not find the statement that forces of production develop throughout history to be surprising, depending on the case.

[369] See for instance Brenner, 1986, pp. 41-46 and Wood, 2002, pp. 104-105. Note that Brenner does not argue that forces of production will not advance per se, but rather that there will be resistance to such advances being adopted and spurring economic growth. This is, for our purposes, effectively saying that there is no tendency for the forces of production to advance. If advances in the forces of production are not adopted, then they do not contribute to productive ability, or extra labor. Nor will they cause shifts in relations of production.

[370] See Smith, 2014, pp. 13-14 and p. 25.

argue that some form of rational human interest can explain the development of the forces of production. Such views do not adequately account for situations where structural or class interests may outweigh any generalized interest in greater developed forces, but societal selection can do so as it can remain agnostic as to how and why new developments in the forces of production emerge. So societal selection might have an advantage over such views, but such an advantage is not necessarily decisive, given that societal selection is no doubt also open to its own lines of criticism. As such, even if somehow decisive evidence of a tendency for the forces of production to develop in pre-capitalism were to be established beyond a doubt, this would provide evidence not only for societal selection but also for a number of other rival theories or sets of theories.

The prediction of development of the forces of production is not the only core prediction of societal selection, however. Key to the selective mechanism at the heart of societal selection is the notion that societies with greater developed forces of production will tend to spread their practices at the expense of those of societies with lesser developed forces. Or more precisely, that societies with greater extra labor will tend to spread their practices at the expense of those with lesser extra labor. This entails that according to societal selection practices will tend to spread from societies with greater extra labor to societies with lesser extra labor. Societies with greater extra labor will tend to be able to conquer, economically outcompete, or be imitated by, societies with lesser extra labor more often than the reverse.

While there are few, if any, rival views of history that would predict this link between extra labor and competitive success, I suspect few people would be surprised by this being true. The point of contention when Carling suggested that a competitive primacy was at the core of historical materialism was not that the mechanism doesn't exist at all. It seems uncontroversial that any relevant advantage, be it in forces of production, extra labor, or otherwise, will entail a greater likelihood to succeed in military any economic competition. The claim that such an advantage would also entail a greater chance of being imitated might be more controversial, but I suspect that most

critics would not find this to be their core objection either.[371] Rather, the main objection the competitive mechanism that has already been proposed (Carling's competitive primacy) is not that this competition does not exist, but rather that it does not have the historical effect that he claims.[372] Increased forces of production may provide an advantage but this advantage might not be powerful enough to underpin a tendency for the forces of production to develop in the face of other historical forces. In chapter 2, I made an argument for why even a modest advantage provided by the forces of production should be enough to entail a tendency that, while not overwhelming by any means, is powerful enough to suit the purposes of Carling or myself. But this is a theoretical claim, that is separate from the empirical one. As such, while the theoretical argument may sway some, few would have reason to be swayed towards societal selection by an empirical study which shows that indeed extra labor or forces of production provide a greater chance of competitive success, since this was already a premise that most would accept. They could simply argue that this effect is insignificant relative to other effects in history. As such, this prediction does not constitute a prediction of a novel fact since it relies on an explanatory process that most critics would already accept. It is not here that the points of contention really lie.

The core predictions of societal selection, therefore, would not provide crucial evidence for societal selection even if they were to be corroborated by investigation. They either entail predictions of data that most would already accept, or that can be predicted by other theories. They do not therefore constitute novel predictions or "novel facts" and are unlikely to convert many skeptics. However, this does not mean that attempting to corroborate them is useless to defending the theory. Showing that forces of production tended to develop would at least show that societal

[371] Chibber argues that imitation would rarely, if ever, motivate societies to adopt forces of production which require the implementation of new relations of production. He further notes that attempts to adopt new forces of production may find themselves failing due to lack of class capacity or such attempts failing to achieve the results that were intended. These objections were discussed in Chapter 1. However, he does admit that a ruling class having the desire to imitate another with greater developed forces is at least plausible. He discusses the desire to specifically imitate greater developed productive forces, but societal selection allows the even weaker assumption that there need only be a desire to imitate the practices of a society with greater developed forces. See Chibber, 2011, p. 77.

[372] Chibber, 2011, pp. 77-78; and Laibman, 2008, p. 90.

selection is on the right side of this issue, even if it is alongside others. Conversely, showing that forces of production did not tend to develop in pre-capitalist societies would be evidence contrary to societal selection which would throw the validity of the theory into question and need to be addressed (preferably with progressive-ad hoc claims). It may not be possible to use a corroboration of this prediction as strong evidence for societal selection, but there is still merit to attempting to establish, or refute, this tendency empirically.[373]

## 2) Corollary Predictions

It is perhaps unsurprising that societal selection is unable to establish any novel facts on the basis of its core predictions. This is not generally where the novel facts of most scientific research programs lie either. Rather the novel facts of research programs in the natural sciences are generally found in consequences that can be derived from its core theories. The same is true of the societal selectionist version of the Marxist research program. There are of course many potential corollary predictions of societal selection, so I will limit myself in this section to discussing the predictions with the most potential and that have the most ability to constitute novel predictions or novel facts.

### *Imitation of Conquered by Conquerors*

[373] This would, of course, be a very difficult task to pull off. There would, I believe, be two main challenges. The first is the challenge of data gathering. Establishing a tendency cannot be done with one or two case studies, but rather requires general data on development of the forces of production. There must be enough cases to drown out the anomalous ones. Second, collecting such data would additionally require a means of measuring the level of development of the forces of production with some amount of precision based on the kind of data that is possible to acquire about these societies (which will be uneven, in many cases).

The first prediction relates to the core selectionist mechanic of societal selection. As I discussed above, I do not believe the main mechanism of societal selection to be very contentious. As of yet, no critics of competitive primacy that I am aware of have argued that greater developed forces of production have no benefit to military or economic competition, or that this benefit would not translate into some statistically higher likelihood that societies with greater developed forces of production will be more likely to be successful in these arenas of competition. Rather the contention is that this statistical likelihood is not historically significant due to more important forces at work in history.[374]

The addition of imitation, however, allows for an interesting and perhaps more unexpected prediction. I am not referring here to the main prediction of imitation in societal selection, which is that societies with greater developed forces of production will tend to be imitated by societies with lesser forces of production more often than vice-versa. This would not fare much better against the criticism that other factors are more important than societal selection. It is certainly at least intuitively plausible and would not surprise most, though many may not think it to be a powerful enough tendency to be meaningful.

However, the addition of imitation leads to a prediction that might be more surprising. Specifically, in a situation where a society with lesser developed forces of production happens to conquer one with greater forces of production, the society with lesser developed forces will *still* tend to adopt the practices of the society with greater developed forces. This prediction seems less intuitively plausible, since presumably a conquering society would want to hold on to their own practices, and would have every reason to look down on the society they just conquered. For this imitation to occur, it would have to overcome any racism, or national chauvinism which might make the conquerors regard the conquered as not worth imitating. It would have to overcome any unwillingness of those in power in the conquering society to abandon the practices that put them in

[374] Chibber, 2011, pp. 76-78.

power. And it would likely have to overcome other factors impeding the willingness of conquerors to change their practices, such as perhaps cultural conservatism. They are in the position of being able to force their practices on the society they just conquered, and this ability is not reciprocal. And yet, societal selection predicts that conqueror will imitate conquered in the majority of cases where the conqueror has lesser developed forces than the conquered.

This is closer to the kind of prediction that might constitute a novel fact. The fact that some conquering societies adopt the practices of the conquered is a well-known fact that is not adequately explained. One may offer plentiful reasons why in any given instance this occurred, but its occurrence as a phenomenon is not adequately explained. Explanations of historically specific instances cannot be explanations of the phenomenon as a whole unless there is a claim about what might be generalizable from this case. What factor, or factors, could be used to predict when it will or will not occur? Here societal selection provides an answer. It predicts that the development of the forces of production would be a good predictor of when societies that conquer another adopt their practices. As such, if this prediction were vindicated by empirical investigation, it would provide a powerful corroboration of the theory.

Vindicating this prediction would require a broad study of pre-capitalist societies, but one which is much more limited in scope than would be required for determining whether or not societies with greater developed forces tend to be victorious in military competition. One would "only" need to examine historical cases where a society with greater developed forces of production (which could be approximated by greater labor productivity) was conquered by a society with lesser developed forces of production. This is still a tall order, but perhaps not impossibly so if the right data on historical societies were available.

The major issue in trying to test this prediction is determining who can be considered to be adopting the practices of the other. In most cases, there will be exchange of cultural practices on both sides, even if this exchange is uneven. Conqueror and conquered will be influenced by each

other and so determining who is influenced more is something of a fool's errand. Who is more influenced when one society imitates an artistic style and the other imitates record keeping practices? Thankfully, the practices themselves are not what is important to societal selection. The statement that societies adopt others' practices is merely meant as an explanation of what is bringing about what societal selection truly predicts: greater development of the forces of production. What is important is not that the society with lesser forces adopts all practices of the society with greater forces, but rather that the former society is adopting practices which allow greater development of the forces of production. I claim in chapter 2 that this will tend to occur even if practices are adopted without any intention of developing the forces of production. What is important at the end of the day is that the conquering society further develops its forces of production as a result of this conquest, or at least, that the gains it makes in this regard outweigh the losses in development occasioned by any imitation by the more developed conquered people.

If we take p to represent the level of development of forces of production and S to represent a society then the prediction can be represented as follows:

If S1 conquers S2, and $pS1 < pS2$

Then $P(\Delta pS1 > (\Delta pS2)) > 0.5$

The first line here denotes that the level of development of the forces of production of the conquered is greater than that of the conqueror. The second line represents the claim that in this case the probability of the forces of production of the conqueror changing to a greater extent than those of the conquered is greater than 50%. In other words, this state of affairs is more likely than the converse state (where the forces of production of the conquered change to a greater extent

than those of the conqueror) when the level of development of the forces of production of the conquered are greater than those of the conqueror.

Of course, ΔpS1 and ΔpS2 will be influenced by other causes. Notably, as mentioned above, we might expect that one or both would be lowered by elements such as national chauvinism on behalf of the conquerors. This could cause the conquerors to favor their own practices and disfavor the practices of the people they conquered, and therefore refuse to adopt practices which increase the development of the forces of production, or force the conquered to adopt practices of the conqueror which decrease the development of the forces of production. However, elements such as these do not undermine the force of the prediction if it holds true. In fact, they strengthen the prediction, since they give reasons that we might not expect it to hold true, even though it does. They render it even more striking that the prediction holds true.

More concerning are outside causes which might cause increases in the forces of production for exogenous reasons, since these might be argued to cause false positives. There are three possible types of exogenous causes we can consider here. The first are random and contingent causes, the second are causes which might consistently promote the development of the forces of production generally, and the third are causes which might consistently promote the development of the forces of production in cases of this sort of conquest.

The first case, where the causes are random and contingent, should not pose a major problem. If random and contingent causes might cause false positives in some cases, they should, just as frequently, cause false negatives in others. They would give reason to be skeptical of a result where $P(\Delta pS1 > (\Delta pS2))$ is not much greater than 0.5. But if the result is above 0.5 to a statistically significant extent (given the number of cases considered), then the result would still be meaningful.

The second case, where some factor, or factors, are consistently increasing the development of the forces of production, poses more of an issue. This could consistently cause false positives without false negatives. However, this requires a postulation of some other force or tendency which

is increasing the forces of production even in these cases. What this force or tendency might be would need to be explained and shown, and would be its own theory of development of the forces of production. The tendency of the development of the forces of production would still be held, just for other reasons.

One possible example of this second case would be intentionalist explanations of development of the forces of production, such as that of Cohen. However, societal selection has the advantage of having this be an expected result. Cohen's intentionalist explanation on the other hand requires additional hypotheses which explain why the preference for greater developed forces of production would override the countervailing factors previously mentioned. Cohen's explanation of the development of the forces of production relies on a rational interest in the development of the forces of production, that is meant to make itself felt throughout history, but where there is no strong reason to expect it would hold in this specific case, in spite of countervailing factors. Cohen could explain this result, but does not expect it.[375] This means that it would provide more powerful corroboration of societal selection than of Cohen's view.

The third case of outside factors creating false positives is when there is some factor that can be argued to lead to greater increases in development of the forces of production consistently, but in a more limited way. Perhaps something about the conquest of one society by another leads to both having greater developed forces of production. Perhaps both were pushed to develop military weapons through their conflict, which after the war begins to yield non-military applications which boost the development of the forces of production. Such an effect, if enough to cause enough false positives to invalidate the prediction, would be a problem for the prediction, and weaken the ability of this result to corroborate societal selection. Perhaps then, the success of the prediction would be a fluke, but this would need to be argued for. It would introduce an avenue for skepticism, but this

[375] See Lakatos and Zahar, 1978, pp. 179-180 on the usefulness of predicting already known but inadequately explained facts.

would be limited by the ability of critics to show evidence that in fact the effect measured can be fully accounted for with other factors. If they are seeking to undermine societal selection, and not merely this prediction, they would additionally need to find factors that are not a part of societal selection itself. The example used in this paragraph, for instance, would not allow them to do this, as it is an effect that societal selection would expect and would, in a more sophisticated test, be able to account for.

The most important issue however is that the tendency might not be "dramatic" enough. If the result is that $P(\Delta pS1 > (\Delta pS2)) = 0.51$ then this would not be a particularly surprising result. It is hardly better than random. The result would need to be significantly above that, and indeed, societal selection would expect it to be significantly above that, though by how much is unclear. The extent to which this prediction would corroborate societal selection is therefore dependent on how high the probability turns out to be.

This discussion has intentionally been hypothetical, based on results that we do not have, and do not currently have the ability to collect.[376] But this is inevitable when it comes to making a prediction. The point of this is not to prove societal selection by assuming the prediction to have come true, but rather to show that it is making a saliently powerful and specific prediction. Therefore, societal selection is theoretically progressive.[377] There are predictions it makes that could in theory be tested and either strengthen it or require it to add additional hypotheses. Of course, we may not currently be able to test this prediction, which means that this theoretical progressiveness is of little help to societal selection right now. But this theoretical progressiveness does nonetheless mean that societal selection has potential as a theory which might add greater empirical content to the Marxist research program.

[376] Most crucially, productivity numbers of ancient societies may be quite difficult to ascertain.
[377] Meaning that it responds to contrary evidence posed to previous iterations of the research program with explanatory factors which entail predictions which are theoretically possible, but practically impossible, to test. Lakatos and Zahar, 1978, pp. 183-184.

*Superstructures, and Work Time and Intensity*

Some other relevant predictions occur in the discussion on extra labor. Specifically, I predicted that superstructures, work time, and work intensity would tend towards maximizing extra labor given the relations of production and forces of production prevalent at the time. They would balance out the productive benefits of extra work time, work intensity, and resources devoted towards superstructures with their inherent costs. I choose to discuss them together here because they should all behave in the same manner and have similar strengths and issues when it comes to using them as predictions.

These predictions came about as the result of the introduction of the notion of extra labor. This was necessary both to integrate imitation into the selectionist view, and to provide a more accurate measure of the factor being selected for in societal selection. Work time, intensity and superstructural costs all necessarily contribute to the determination of extra labor, meaning that understanding them is very important for societal selection. Their local-maximum-seeking behavior is both a necessary consequence of them being part of extra labor, the quantity being maximized in societal selection, and important in showing how long term changes in extra labor are dependent on changes in forces and relations of production. This is therefore a prediction that comes as a direct consequence of introducing extra labor into the selectionist historical materialist paradigm.

The prediction that superstructures will tend towards the greatest stability at the lowest cost may not be particularly surprising, even as it relates to pre-capitalist societies. Keeping the lower classes in line has quite consistently been a major concern of ruling classes throughout history, and so it makes sense that they would devote a lot of thought to making superstructures more effective at preventing revolts and ensuring a compliant workforce, while at the same time freeing

up as many resources as possible for potential wars.[378] Revolts might pull them one way, and wars or desire for wealth might pull them the other, but it is not unreasonable to think they may come pretty close to achieving an extra labor maximum whether or not one finds societal selection plausible. Working time and intensity reaching extra labor maxima might perhaps seem a bit less plausible, as accustomed as we are to thinking of pre-capitalism as inefficient. But, again, there is a decent reason to believe that they will tend towards the point of maximizing extra labor even without adopting societal selection. It would be reasonable for ruling classes to want to squeeze out as much labor as possible from their workforce without them rebelling or without the costs of doing so exceeding the benefits.[379]

These alternate explanations are generally intentionalist, ruling classes strive for the local maximum intentionally for reasons which are quite discernible. As such, one way the prediction might be able to corroborate societal selection specifically would be to isolate instances where the effects of a given practice for superstructural efficiency, work time, or work intensity were not recognized. This might be the case, for elements such as religious practices, since they may be viewed by contemporaries as being a decision solely concerned with, for instance, adherence to sacred texts. If the practices that helped approach the extra labor maximum still tended to be kept at a greater rate than those that did not, this would be a corroboration of societal selection. The difficulty with this approach is determining when a ruling class was or was not aware of the potential effects of such practices. And since the prediction concerns a tendency, such a determination would need to be made for a decent number of cases before it is able to say that a tendency exists with any degree of statistical certainty.

[378] The rise of absolutism could be considered one such attempt to balance resources between social stability and war. Anderson, 2013a, pp. 32-33.
[379] Brenner is a good example of someone who might believe this to be a crucially important consideration for ruling classes, while holding that the primacy of the forces of production is false with regards to pre-capitalist society. Brenner, 1986, pp. 30-32.

Another way in which the societal selectionist prediction would be different from some other possible explanations is the additional importance of the forces and relations of production in determining this extra labor maximum at a given point. This would not separate it from some other Marxist accounts, but would separate it from non-Marxist accounts. The prediction could then be that supersturctures, work time, and work intensity would approach extra labor maxima that could be calculated in advance based on the forces and relations of production in a society in question. This would require a means of performing such advance calculations, which would itself require a theory of the relationship between forces and relations, and working time, intensity, and superstructures which would allow for modeling of where these maxima might be at given forces and relations of production. I have not had the space to do this in this work as elaborating such a relationship would require at the very least its own study, if it can be achieved at all.

But if we assume that such a relationship could be established, then the prediction could be corroborated with perhaps even a single case study, over a long enough period that forces or relations shift in a significant way. It would corroborate the Marxist view if it could be shown that when the extra labor maximum for, say working time, is at one point before a relevant change in the forces of production, and at another point after that change, and that empirically the working day approached the first maximum before the forces of production change, and then shifted towards approaching the second maximum after that change. For instance, if the introduction of an animal drawn plow could be shown to increase the extra labor maximal working day of agricultural work (during seasons where agricultural work was useful) from 7 to 9 hours (due to the lesser strain on the agricultural laborer), then it would be evidence in support of this view if a society were to have an average agrarian working day that was tending towards 7 hours before the introduction of this plow and then started to tend towards 9 hours after the introduction of this plow. The key here is not that this labor time increases in response to the introduction of this plow. This on its own would be a decently useful prediction, but it is not surprising from a Marxist standpoint, and from some non-Marxist standpoints, that a tool which decreases the intensity of labor might increase labor

time.[380] The real prediction here, however, is that both before and after the introduction of the new plow the average working day will tend towards the different extra labor maximizing working days. And if this prediction could be corroborated, it is both precise and surprising without the introduction of extra labor provided by societal selection. It would, ideally, show that an extra labor analysis is able to predict changes in working time, and perhaps similar analyses could be used to show that it could do the same for working intensity and superstructural costs.

*The Compatibility Thesis*

The Compatibility Thesis provides another set of predictions which does not merely relate to societal selection, but would also be held by some other versions of historical materialism. As discussed in chapter 4, the compatibility thesis contains two parts, each of which are predictive. The first is that no level of development of the forces of production is compatible with all relations of production. And the second is that no set of relations of production can exist at all levels of development of the forces of production.

These are decently precise and quite testable propositions. To call the first into question, all that would be needed would be to find a level of development of the forces of production at which we can find enduring instances of all known relations of production (primitive communism/socialism, slavery, feudalism, and capitalism). In fact, rarely do we ever have more than two in existence at once, except perhaps for the transition from feudalism to capitalism which included some large examples of slave societies in lands colonized by Europe, most famously the Southern United States. Their mere existence as contemporaries does not mean that they existed at the same level of development of the forces of production, such development being uneven. But

[380] Marx and Engels, 1996, p. 413.

there is a good case to be made that some colonial slave societies such as the Southern United States, and some of the eastern European feudal societies, were at similar levels of development of the forces of production as some recognizably capitalist societies, either past or contemporary.[381] Whether that case stands is debatable, and beyond our purview here, but either way it should be unsurprising that multiple relations of production would exist in transitionary periods, as one set of relations falls and the other rises.[382] And if slavery and feudalism are indeed viable at roughly similar levels of development of the forces of production (as suggested in chapter 4), it is unsurprising that both should have made an appearance in the period of transition to capitalism.

Calling this claim into question only needs one example of all four known relations existing at the same level of development of the forces of production. As such, in spite of its apparent obviousness to many, this is in fact a striking claim. History being as complex and messy as it is, there does not seem to be much reason to expect this to hold true a priori. Furthermore, there is not, to my knowledge, an adequate alternate explanation for this. Hegelian, or other views about the progress of ideas, might be able to explain the progression between stages of history, but they do not preclude the existence or endurance of all relations of production at the same level of development of the forces of production because the forces of production are not a salient explanatory category for them. Societal selection, and many other views of historical materialism, do preclude this. However, societal selection is able to go further than most by explaining why not all relations of production will be viable at any given level of development of the forces of production. Societal selection precludes the possibility of relations which do not further develop the forces of production enduring and spreading. This means that the only time multiple sets of relations of

[381] And indeed, as societal selection, and most historical materialist theories generally, would predict, the slave and feudal societies died out as the forces of production developed.

[382] Since one would be analyzing a specific level of development of the forces of production to test this, one could go into more detail about what is necessary to be at the same level of development of the forces of production. It involves the widespread use of roughly similar forces of production (machines, tools, technologies, etc.). As such, one could look at the antebellum South of the United States and try to find an instance of a capitalist society that used similar forces of production, as well as a feudal one which did the same.

production should exist side by side is in periods of transition, or possibly when multiple (but not all!) relations are competitively viable at roughly the same level of development of the forces of production, as I have argued might be the case for slavery and feudalism. In all other situations emerging relations of production should find themselves unable to endure and spread, meaning that they may emerge only briefly if at all.

The second prediction is also clear in what it precludes, though disproving it is more demanding. To call it into question one would need to find a set of relations of production which is compatible with all levels of development of the forces of production. Empirically, this would likely involve finding examples of a set of relations of production existing and enduring at enough different levels of development of the forces of production to suggest that it is compatible with all forces. Showing this for capitalism, for instance, would require being able to point to examples of capitalism (as defined in chapter 4) being dominant in enduring societies where the highest productive technology was the plow, or iron tools, or bronze tools, or at other levels of technology generally associated with pre-capitalism. Enough of these examples, spread out over enough of the history of productive technologies, and it would be possible to invalidate the claim that no set of relations can exist at all levels of development of the forces of production. Otherwise, some other means would need to be devised to show that this set of relations could have endured at all levels of development of the forces of production to date. Neither of these has been done, but it is also a high bar to clear, attesting to the modesty of this prediction.

Given the modesty of the prediction, it is unlikely to be particularly surprising to many, save perhaps those who hold on to the view that capitalism has always existed, if the prediction holds true. As such, the first prediction mentioned here is more fruitful than the second. The prediction that no level of development of the forces of production has allowed the flourishing of all relations of production is more helpful in substantiating historical materialist views than the prediction that no relations of production are compatible with all levels of development of the forces of production.

*Transitions Between Relations of Production*

One of the clearest predictions of historical materialism, societal selectionist or otherwise, is the transition between relations of production. When relations of production fetter the development of the forces of production the former will be replaced by new relations of production. As discussed in chapter 4, for the societal selectionist account this fettering is to be considered relative to alternatives. If new relations can develop the forces of production to a greater extent than old relations, the old relations are relatively fettering the development of the forces of production. This means the old relations are now liable to be replaced with new ones. However, this may not occur immediately as old relations still possess some advantages allowing them to hold on to power. For new relations to succeed they must be able to overcome these advantages, with some combination of circumstantial advantages of their own and greater development of the forces of production. The more the old relations are relatively fettering the forces of production, the greater the ability for new relations to supplant them.

This prediction is distinctly Marxist. If corroborated it would be a major coup for historical materialism. The difficulty is putting it in a form that can be tested. One advantage is that for societal selection it should be the case that *all* new relations that rise to dominance will possess a greater ability to develop the forces of production than its predecessor. This is a quite powerful prediction, since without a historical materialist analysis we may not expect this. One might expect it to be true some of the time, due to human beings preferring greater developed forces, all other things being equal. However, if this is just one preference among many, why couldn't a set of

relations of production which satisfies other preferences to a greater extent become dominant? Societal selection provides a means to explain this if true.

However, determining when a set of relations develops the forces of production more than another will be tricky. The notion of relative fettering offers a means of determining precisely when fettering occurs in theory. One would need to measure the rate of increase in productivity of one set of relations relative to a new one. However, determining the rate of increase in productivity of new relations is impossible without them not only existing, but having existed long enough to be able to say something about the rate at which productivity increases under these relations. Given that their rise and endurance is the consequence societal selection attempts to predict, the fact that new relations need to have arisen and endured poses an issue. Relative fettering does not, therefore, provide a precise manner to determine when a currently existing set of relations of production is fettering the forces of production. Making a claim that current relations are fettering the development of the forces of production would require some means of assessing the potential to develop the forces of production of relations which do not exist. Such potential could be the source of very fruitful debate, but there may not be any means of determining which side of the debate is correct except in retrospect.

In retrospect, however, it should be possible to show that old relations were relatively fettering the development of the forces of production, since one could compare the increases in productivity in societies which have adopted the new relations with increases in productivity in societies still using the old relations. This approach will have some difficulties due to the fact that relations of production in transitionary periods are often mixed, with one set of relations being dominant (as discussed in chapter 4). But even then, one could compare the increase in productivity of hybrid relations with old relations. If the hybrid has greater increase in productivity this strongly suggests that the new relations would have even greater increases in productivity. And if this is the

case, this appears to vindicate the historical materialist predictions about transitions between relations of production occurring when old relations are fettering the forces of production.

If we assume, as the above argues, that fettering can be determined in past situations of transitions, another problem may pose itself. If the fettering measured in past instances is relatively minor, there is no issue for many historical materialist accounts. The prediction that relative fettering causes social revolution in a relatively straightforward manner holds true. Once fettering occurs, social revolution begins. However, this is not what societal selection predicts. Indeed, were this fettering to be minor when new relations begin to endure this would pose an issue that societal selection would need to explain. Since societal selection considers competitive advantage to be crucial to this process, it is not sufficient that relative fettering is occurring. If socialism were able to develop the forces of production only marginally better than capitalism, this would not provide it with a significant advantage in international competition. Moreover, in most cases new relations need to overcome significant advantages that the old relations possess due to their status as incumbent relations.

Societal selection's prediction, therefore, is that societies with new relations of production which endure and spread will, from the outset, possess *significantly greater* ability to develop the forces of production than old relations. This ability, combined with other circumstantial factors, must be enough to offset the incumbent advantages of the old relations. Determining whether this prediction holds true is unfortunately much more complex than simple relative fettering account. It would require being able to account for the strength of an incumbent's competitive advantage, and the strength of any circumstantial factors which might offset this advantage. I do not currently know of any means by which these could be determined with any precision.

However, societal selection does still offer the distinct prediction that the difference in development of the forces of production between new and old relations will be significant from the

outset. As such, were this confirmed to be the case, this would offer some confirmation of societal selection.

*Socialism*

The prediction that socialism will replace capitalism is perhaps the most famous of Marx's predictions. It is also a prediction that is intimately tied with historical materialism. Socialism will succeed capitalism because capitalism will eventually fetter the development of the forces of production relative to socialism. This prediction is arguably the point of historical materialism. If the point of theory is to change the world, the prediction that socialism will succeed capitalism may serve some important functions in this light. It may play an motivational role, in showing that capitalism is not eternal and that another world is possible. It may also play a strategic role, as it is meant to lay out the conditions under which it is possible for socialism to replace capitalism. As such, it is important to address the status of this prediction in light of societal selection.

This is a different sort of prediction from the others we have discussed since it is not testable in the same sense. Any "test" of it must be in the future, since it is a prediction about the future only. In terms of attempting to corroborate the theory of historical materialism, we would be better served looking elsewhere. In the best case, the prediction would be vindicated by the actual rise to dominance of socialism, at which point it would be unable to predict anything new, since the event it predicts has already come to pass. Additionally, the prediction that socialism will succeed capitalism at some point is borderline impossible to throw into doubt, even as history progresses. There is no way of showing that socialism cannot possibly come about. Historical materialism may cease to predict the advent of socialism if, say, a natural catastrophe or some other events sets back human development in a significant way. But there is no way to show that it is wrong in predicting that

socialism will come about given the vagueness of this prediction. Attempting to defend this prediction will therefore depend on defending historical materialism as a whole, or at least those parts of it which contribute to making this prediction.

A more specific prediction could be more fruitful. If historical materialism were to claim that socialism would come about at a specific time, or when a set of specific conditions were met, this would be a more interesting prediction. It would still not be possible to test this prediction against the historical record, or against data that could possibly be obtained. But were the specific time or specified conditions to come about, the failure of socialism to arise would throw the prediction into doubt. Of course, even this would not invalidate the possible rise of socialism, or even that historical materialism predicts it for the correct reasons. It would merely mean that whatever version of historical materialism was used to make the false prediction would need to account for this failure in some (preferably progressive) way.

Societal selection does offer a prediction of the conditions under which socialism would have the potential to become the dominant relations of production. Like any other set of relations of production, this occurs when it becomes relatively more able to develop the forces of production than capitalism. However, as discussed in the previous section, I do not know how such an ability can be shown without socialism being able to exist for some time.[383] With regards to past transitions, it is possible to attempt to ascertain this by looking at the period after the transition. However, since we cannot reach this period until after socialism has succeeded, this solution does not help here.

[383] Perhaps somewhat controversially I do not take the existence of the USSR to qualify here, for two reasons. First of all, the fact that workers did not collectively and democratically own the means of production in the USSR means that, according to the definition I elaborated above, the USSR did not qualify as socialism. And second, even if the USSR were a socialist state, all that its failure suggests is that socialism was unable to be competitive with capitalism a few decades ago. The forces of production have developed significantly since then, so even were it the case that socialism could not develop the forces of production to a greater extent than capitalism back then, this would not preclude it from being able to do so now. If for instance, as Mason and Bastani seem to claim, the rise of information technology is indeed crucial to socialism (or post-capitalism, or whatever might follow capitalism) then the fact that socialism did not succeed before the rise of such technology is unsurprising.

In fact, strictly speaking, both societal selection and historical materialism generally do not actually predict the rise of socialism. To make this prediction auxiliary hypotheses are required. Historical materialism, as elaborated in the 1859 Preface, merely predicts that when a set of relations begins to fetter the development of the forces of production, it will be replaced by new relations. However, there is no guaranty that capitalism will ever fetter the development of the forces of production. Furthermore, there is no guaranty that socialism will be the relations of production to replace capitalism, even if the latter does fetter the development of the forces of production. I make an independent defense of the likelihood of the emergence of socialism in chapter 5, but the rise of socialism cannot be defended by historical materialism alone. It also requires an analysis of the dynamics of capitalism and of the ways in which socialism could potentially further develop the forces of production. This is arguably why Marx has such a strong and continued interest in political economy and the dynamics of capitalist production and circulation. In the Marxist research program defending the prediction of the rise of socialism requires such an analysis.

## 3) Concluding Remarks

In this chapter I have made the case that societal selection is a theoretically progressive addition to the Marxist research program. It provides predictions that could theoretically be tested against historical data, even if such data may not yet be available. This presentation also serves as a suggestion of how societal selection might be corroborated or put into doubt. It suggests lines of research that it would be useful for any interested in evaluating societal selection to pursue. The predictions propose a challenge to any who are skeptical of societal selection, and a means of validation of the theory for any who find it compelling. Of course, the predictions involved in societal selection are far from perfect. They often lack as much precision as would be desirable for this sort

of endeavor. But I have attempted to pose them, when possible, in a way which renders them as precise as possible, so it may be clear when empirical results favor or disfavor the theory.

As I mentioned in the previous chapter, I believe this exercise to be a valuable one for any who see the ultimate goal of the social sciences to be explanation of social phenomena. Taking seriously the goal of enabling the social sciences to approach the predictive power of the natural sciences requires us to begin to attempt, insofar as possible, to evaluate social scientific research programs in the way natural scientific research programs are evaluated. Of course, as this chapter exemplifies, most or all social scientific research programs are not currently going to be able to provide precise predictions of phenomena which are not expected or easily explained by rival views. But the goal is still worthwhile, and, I believe, ultimately possible. We may still be far from reaching it in the social sciences, but we will certainly not be able to reach it without trying. By laying out the predictions of a view in as precise terms as possible, it becomes possible to corroborate that view, or to know when it needs to be changed to accommodate unexpected facts. Furthermore, philosophy of science provides a guide to how research programs are best changed when confronted with unexpected data. Ideally, contrary evidence should be accommodated with theories which offer their own new predictions, which can be tested. When the ad-hoc additions made to accommodate new evidence do not make such new predictions, so much the worse for the research program.

However, even if one does not share this goal for the social sciences, I believe this approach still holds value. Laying out the scientifically important predictions of a theory as precisely as possible makes it clear what evidence an author believes would call into question the view they propose. It lays out what claims are key from an evaluative standpoint and points out lines for future inquiry. As such, when possible, I believe the clarification of social scientific predictions to be a valuable part of any social scientific theory.

# Conclusion

Societal selection explains the development of the forces of production through a combination of competition and imitation. Drawing from Carling, I argue that the forces of production advance due to competitive pressures between societies. Societies with greater developed forces of production will have a greater tendency to succeed in military and (when relevant) economic competition. This means that they will have a greater ability to endure and spread than their rivals, meaning that their institutions will be selected for in international competition. This leads to a tendency for the forces of production to develop as those societies which fail to develop the forces of production get outcompeted by those which develop them. Similarly, relations of production which allow further development of the forces of production will tend to win out over those that do not allow such development, since the former will be able to achieve greater levels of development of the forces of production than the latter.

However, Carling's mechanism of competitive primacy is not enough alone. One issue it faces is that it fails to explain how conquest translates into spread of forces of production. Conquest does not automatically result in conquerors imposing their institutions on the conquered, and in some cases the conquerors even adopt institutions form those they have conquered. Occasionally, the conquerors may have the will and the means to impose their practices, but this will not always be the case. The second major issue posed to Carling's view is that purely competitive primacy would result in a world and a process of development of the forces of production that is quite unlike our own. Spread of new developments of the forces of production would require military conquest or economic expansion. However, new forces of production very often spread without needing conquest to occur. Additionally, the if the process relies on pure competition it would result in a very slow tendency to develop. Spread of new and greater developed forces would need to wait for those

who have developed these forces to conquer others. And this process would be further slowed by the fact that the forces of production are one factor among many which allows for military competitive success. This would still allow for a tendency, a minor bias is enough to result in a tendency given enough time, but it would further slow the process.

These issues in Carling's view can be responded to with the addition of two concepts: Imitation and extra labor. Imitation allows for a non-competitive means for greater developed forces of production to spread. Instead of needing to be conquered by a neighbor with greater developed forces, a society can adopt these greater developed forces by realizing that this society has an edge and trying to imitate them in order to gain this edge themselves. The imitating society need not even be aware of exactly what is giving them this edge. Unsuccessful imitations would not result in the advantage the imitator sought, leading to them either imitating again, or being further overtaken by societies that have further developed the forces of production. Imitation also allows for imitation to occur when forces of production lead to other forms of success, not merely military and economic competitiveness. Societies with greater developed forces may be imitated also if these greater developed forces allow higher standards of living, more resources to be devoted to art and cultural practices, greater acquisition of luxury goods for the ruling class, or some other form of success which can inspire imitation.

As such imitation allows societal selection to respond to some of the problems posed to competitive primacy. When conquest does not involve direct imposition of practices by the conquerors, it may still spread via unforced imitation. The conquered, seeing that they have been bested, will often seek to wield the tools that defeated them. Imitation also explains cases where conquest results in the conqueror adopts practices from the conquered instead of the other way around. This will tend to be true in cases where the society being conquered had greater forces of production, but lost the military competition either due to other factors, or due to devoting a greater portion of resources to non-competitive pursuits. The practices of the society with greater

developed forces will still tend to win out, even if that society lost militarily. Additionally imitation allows societal selection to address the concern of the speed of change partially. Since the forces of production can spread through imitation, conquest will not always be needed. Even concerning military success, societies often attempt to stave off conquest by imitating their more successful rivals. As such, the process has the potential to occur as fast as human beings are capable of imitating each other, though in practice this may be slowed by factors that discourage imitation or encourage the wrong sorts of imitation.

However, one problem remains from the critique of Carling, the fact that greater forces of production appear to only lend a very weak bias towards military success. Additionally, adding imitation has created another problem: many other domains of human activity have become important in the spread of practices, and these are not clearly dependent on the forces of production at all. Extra labor responds to these two issues as it allows societal selection to link success with forces of production more strongly. Societies which can harness greater amounts of labor, and more productive labor, towards these pursuits will have a greater ability to succeed in them. And the more a society has developed the forces of production, the greater the amount and productivity of the labor it will be able to mobilize towards these pursuits.

The primacy of the forces of production cannot, however, be established from the development of the forces of production alone. And while the thesis that forces and relations must be compatible (the compatibility thesis) can be defended on its own grounds, the two other crucial theses can be much better defended using societal selection. The thesis that the forces and relations will eventually come into contradiction (the contradiction thesis), and the thesis that such contradictions will be resolved in favor of the forces of production (the transformation thesis). I argue that contradiction occurs when a set of relations of production is fettering the development of the forces of production relative to another available set of relations, and that societal selection allows this to be a meaningful and important condition for transformation. Since any advantage in

development of the forces of production allows a society a greater ability to endure and spread its practices, a new set of relations of production with any advantage in developing the forces of production over the old will result in a greater ability to ensure and spread. As such, as soon as contradiction occurs, transformation may potentially occur. Whether it does depends on whether the productive forces advantage of a new set of relations can outweigh the disadvantages it possesses as an upstart. This conception of contradiction and transformation allows societal selection to avoid the problems posed to Cohen's theory on the subject of revolution, and the extent to which contradiction between forces and relations truly leads to revolution. After all, Societal selection is not meant to explain why a revolution occurs when it does, but rather the conditions under which a revolution to change the relations of production will be able to change the dominant relations of an era successfully. And determining whether or not forces and relations are in contradiction is crucial to ascertaining whether or not a new set of relations will be able to endure and spread.

The part of a theory of history that many will find to be the most important is what it tells us about the future. In particular, socialists will be interested in what a theory of historical materialism tells them about socialism. Unfortunately, societal selection cannot, on its own, predict the rise of socialism. Nor should it be able to without the addition of a greater analysis of capitalism and socialism. However, societal selection can provide an understanding of what socialism needs in order to be able to supplant capitalism. Namely, it must be able to develop the forces of production to a greater extent than capitalism. This entails some combination of capitalism's own ability to develop the forces of production breaking down, the forces of production developing in such a way that capitalism is less able to further develop the forces of production than socialism is, and further development of the forces of production rendering socialism more practicable than it once was. Indeed, some combination of these factors is necessary for the rise of any new relations of production. And I believe that all of these processes are possible with regards to socialism. In fact, there are decent arguments available that claim that these processes are in fact underway right

now. These, if nothing else, illustrate how it is possible that capitalism, as supremely competitive as it is seen to be, could be outcompeted by socialism.

Societal selection, like historical materialism (or at least the historical materialism of the 1859 'Preface') and many other theories of history, is an ambitious attempt to explain the broad course of history. The difficulty posed to such theories is that real history is complex, messy, and poorly documented. The actions of classes and individuals, as well as the intervention of contingent historical events, can often have a major impact on history. What I consider to be one of the greatest strengths of societal selection is its ability to incorporate the messiness and contingency of history while still being able to make claims about the broad course of history. Political actors do not need to have forces of production in mind in their actions, they do not need to have a preference for greater development of forces of production. The forces of production do not need to be assumed to be developing as an article of faith or based on an unsubstantiated belief in a human tendency towards progress. Relations of production, or new forces of production, can be adopted for a whole host of reasons. In societal selection the processes of competition and imitation entail development of the forces of production and shifts in relations of production regardless of the reasons for which forces and relations of production are adopted. This is because societal selection does not attempt to explain the events that brought about such changes, but rather whether those changes will tend to endure and spread, or whether they will be consigned to the dustbin of history.

Like any good theory of historical materialism, societal selection has practical implications for political action, even if they are restricted to a grand scale. It is useful in examining and establishing when conditions are ripe for social or political change. This is most obviously true concerning shifts in relations of production, where societal selection is far from alone in trying to determine when conditions are ripe for new relations to replace old. It argues that new relations can replace old when their advantage in developing the forces of production is significant enough to be able to mobilize enough extra labor to counteract the incumbent advantages of the old relations.

Furthermore, it provides a means to evaluate whether other geographic, culture, or relations of production specific factors may be able to help counteract such incumbent advantages, making it easier for new relations of productions to endure in that context. There may not be an easy way to determine the development of the forces of production that a new set of relations allows but societal selection indicates the grounds on which such a debate must occur. Can the new relations develop the forces to a greater extent than the old relations? And can this advantage overcome the forces that will be arrayed against this new set of relations. These are the key questions, even if answering it will be difficult when the new relations do not yet exist.

But societal selection also provides some guidance for smaller changes, in particular changes in superstructural institutions. These will likely to be able to endure and spread when they are able to increase a society's extra labor relative to the already existing superstructures. This provides a means of ascertaining what might be possible on the smaller scale, when large scale shifts in relations of production are impossible. As such it provides a means of evaluating how realistic a societal change in superstructural institutions is. But it also provides a guide to changing the calculus, to making superstructural institutions possible that were not before. Since part of the extra labor calculation for superstructures includes costs in unrest, strikes, and protests, political actors can impose such costs as a means of shifting superstructures in the direction they would prefer. This is not to say that this is the only factor at play in such shifts, far from it. But it is one element of superstructural change to take into account in any political project aimed at changing a superstructural institution.

Finally, I have aspired to make societal selection into an explanatory theory. This entails that it makes predictions about the social world. Of course, as with many social scientific predictions, many will be unsurprising, or too vague to be truly vulnerable to evidence as they do not establish what sort of evidence would call them into question. I believe societal selection can make predictions which would be significantly undermined by evidence. Most of this evidence may be

beyond our current ability to collect. But clarifying what evidence would undermine the theory provides an avenue for further research to either call into question or corroborate the view. It provides a means to evaluate the claims of a theory that is meant to cover the entirety of human history and does not claim to be able to explain most of the details of individual historical cases.

As such, societal selection provides a theory of historical materialism that retains the ambition of the 1859 'Preface' while being able to respond to many of the critiques posed to those such as Cohen and Carling who have attempted defenses of such an account. It attempts to explain the broad course of history in a way that leaves room for human agency, historical contingency, class struggle analysis, and even makes imitation a key factor. However, it does so while retaining the primacy of the forces of production. Ultimately the forces of production are explanatory since relations of production rise and fall as the forces of production develop. And this developmental tendency is underpinned by the fact that forces of production grant, through the intermediary of extra labor, a greater ability to succeed in competition or to be imitated by others. This entails that those societies with less developed forces of production, or with relations of production which fetter the development of the forces of production will tend to either adopt the practices of those that have further developed the forces, or find themselves being conquered, displaced, or killed. This messy process, which runs the gamut from unspeakable cruelty and genocide to uplifting collaboration, imitation and ingenuity, directs the evolution of human societies. And with any luck, this process is laying the groundwork for us to change society for the better.

# Bibliography


Akamatsu, P. (1968). *Paul Akamatsu. Meiji-1868: Révolution et Contre-Révolution au Japon*. Paris: Calmann-Lévy.

Allinson, J. and Anievas, A. (2009). The Uses and Misuses of Uneven and Combined Development. *The Cambridge Review of International Affairs*, 22(1), pp. 47–67.

Althusser, L. (1969). *For Marx*. London: Allen Lane.

Althusser, L. (1990). *Philosophy and the Spontaneous Philosophy of the Scientists & Other Essays*. London: Verso.

Althusser, L. (2020). *On Ideology*. London, New York: Verso.

Althusser, L. and BalibarE. (2015). *Reading Capital: The Complete Edition*. New York: Verso.

Anderson, P. (2013a). *Lineages of the Absolutist State*. London; New York: Verso.

Anderson, P. (2013b). *Passages from Antiquity to Feudalism*. London; New York: Verso.

Angus, I. (2014). The Origin of Rosa Luxemburg's Slogan "Socialism or Barbarism." *Climate and Capitalism*. [online] Available at: https://climateandcapitalism.com/2014/10/22/origin-rosa-luxemburgs-slogan-socialism-barbarism/.

Anievas, A. (2015). *How the West Came to Rule: The Geopolitical Origins of Capitalism*. London: Pluto Press.

Aristotle (1998). *The Politics*. Cambridge: Hackett Publishing Company.

Ball, T. (1979). Marx and Darwin. *Political Theory*, 7(4), pp. 469–483.

Bastani, A. (2019). *Fully Automated Luxury Communism: a Manifesto*. London: Verso.

Bernal, J.D. (1937). Dialectical Materialism and Modern Science. *Science & Society*, 2(1), pp. 58–66.

Bertram, C. (1990). International Competition in Historical Materialism. *New Left Review*, 1(183), pp. 116–128.

Bocco, A., Gerace, M. and Pollini, S. (2019). *The Environmental Impact of Sieben Linden Ecovillage*. London; New York: Routledge.

Brenner, R. (1976). Agrarian Class Structure and Economic Development in Pre-Industrial Europe. *Past and Present*, 70(1), pp. 30–75.

Brenner, R. (1986). The Social Basis for Economic Development. In: J. Roemer, ed., *Analytical Marxism*. New York: Cambridge University Press.

Brenner, R. (2007). Property and Progress: Where Adam Smith Went Wrong. In: C. Wickham, ed., *Marxist History-Writing for the Twenty-First Century*. British Academy.

Buchanan, A. (1979). Revolutionary Motivation and Rationality. *Philosophy & Public Affairs*, 9(1).

Buchanan, A. (2003). *Justice, Legitimacy, and Self-Determination: Moral Foundations for International Law*. Oxford: Oxford University Press.

Burawoy, M. (1990). Marxism as Science: Historical Challenges and Theoretical Growth. *American Sociological Review*, 55(6), p. 775.

Calcott, B. (2013). How and Why Aren't Enough: More Problems with Mayr's Proximate-Ultimate Distinction. *Biology and Philosophy*, 28, pp. 767-780.

Callinicos, A. (1985). *Marxism and Philosophy*. Oxford: Oxford University Press.

Camfield, D. (2016). Elements of a Historical-Materialist Theory of Racism. *Historical Materialism*, 24(1), pp. 31-70.

Carling, A. (1992). *Social Division*. London; New York: Verso.

Carling, A. (1993). Analytical Marxism and Historical Materialism: The Debate on Social Evolution. *Science & Society*, 57(1), pp. 31–65.

Carling, A. (1994). The Strength of Historical Materialism: A Comment. *Science & Society*, 58(1), pp. 60–72.

Carling, A. (2002). Analytical Marxism and the Debate on Social Evolution. In: *Historical Materialism and Social Evolution*. New York: Palgrave Macmillan.

Casal, P. (2015). Marx, Rawls, Cohen, and Feminism. *Hypatia*, 30(4), pp. 811-828.

Casal, P. (2020). G.A. Cohen's Historical Materialism: a Feminist Critique. *Journal of Political Ideologies*, 25(3), pp. 316-333.

Chibber, V. (2011). What Is Living and What Is Dead in the Marxist Theory of History. *Historical Materialism*, 19(2), pp. 60–91.

Claeys, G. (2000). The "Survival of the Fittest" and the Origins of Social Darwinism. *Journal of the History of Ideas*, 61(2), pp. 223–240.

Cockshott, P. and Cottrell, A. (1993). *Towards a New Socialism*. Russel Press.

Cohen, G.A. (1972). Karl Marx and the Withering Away of Social Science. *Philosophy & Public Affairs*, 1(2), pp. 182-203.

Cohen, G.A. (1986a). Forces and Relations of Production. In: J. Roemer, ed., *Analytical Marxism*. New York: Cambridge University Press.

Cohen, G.A. (1986b). Historical Inevitability and Human Agency in Marxism [and Discussion]. *Proceedings of the Royal Society of London. Series A, Mathematical and Physical Sciences*, 407(1832), pp. 65-87.

Cohen, G.A. (1988). *History, Labour, and Freedom: Themes from Marx*. Oxford: Clarendon Press.

Cohen, G.A. (2000). *Karl Marx's Theory of History: A Defence*. Oxford; Clarendon Press.

Cohen, G.A. (2009). *Why Not Socialism?* Princeton: Princeton University Press.

Cohen, J. (1982). Marx's Theory of History: A Defence by G. A. Cohen. *Journal of Philosophy*, 79(5), pp. 253–273.

Colp, R. (1982). The myth of the Darwin-Marx letter. *History of Political Economy*, 14(4), pp. 461–482.

Corneo, G. (2017) *Is Capitalism Obsolete? A Journey Through Alternative Economic Systems*. Cambridge: Harvard University Press.

Darwin, C. (1907). *The Origin of Species*. London, New York, and Toronto: Oxford University Press.

Darwin, C. (1981). *The Descent of Man*. Princeton: Princeton University Press.

Diamond, J. (1997). Continental Divides. *Sciences*, 37(2), pp. 32–37.

Diamond, J. (1999). The Worst Mistake in the History of the Human Race. *Discover Magazine*. [online] Available at: https://www.discovermagazine.com/planet-earth/the-worst-mistake-in-the-history-of-the-human-race.

Diamond, J. (2002). Evolution, consequences and future of plant and animal domestication. *Nature*, 418(6898), pp. 700–707.

Diamond, J. (2017). *Guns, Germs and Steel: A Short History of Everybody for the Last 13,000 Years*. London: Vintage.

Diamond, J.M. (2005). *Collapse: How Societies Choose to Fail or Survive*. New York: Penguin.

Dobb, M. (1973). *Theories of Value and Distribution Since Adam Smith: Ideology and Economic Theory*. Cambridge: Cambridge University Press.

Dubois, W.E.B. (1971). *Black Reconstruction in America 1860-1880*. New York. Atheneum.

Duhem, P. (1962). *The Aim and Structure of Physical Theory*. New York: Atheneum.

East, M. (2018). Current Thinking on Sustainable Human Habitat: the Findhorn Ecovillage Case. *Ecocycles*, [online] 4(1), pp. 68–72. Available at: https://www.ecocycles.eu/ojs/index.php/ecocycles/article/view/107.

Eloranta, J. (2005). *Military Spending Patterns in History*. [online] eh.net. Available at: http://eh.net/encyclopedia/military-spending-patterns-in-history/ [Accessed 19 May 2020].

Elster, J. (1980). Cohen on Marx's Theory of History. *Political Studies*, 28(1), pp. 121–128.

Elster, J. (1982). Marxism, Functionalism, and Game Theory. *Theory and Society*, 11(4), pp. 453–482.

Fagerberg, J., Martin, B.R., and Andersen, E.S. (2013). *Innovation Studies: Evolution and Future Challenges.* Oxford: Oxford University Press.

Fan, Z. (2018). Characteristics of the Yuan Dynasty: Reflections on Several Issues from Mongol Yuan History. *Chinese Studies in History*, 51(1), pp. 51-69.

Fay, B. (1996). *Contemporary Philosophy of Social Science: A Multicultural Approach*. Oxford: Blackwell.

Feyerabend, P. (2010). *Against Method*. London: Verso.

Fields, B. (1990). Slavery, Race and Ideology in the United States of America. *New Left Review*, 181(1), pp. 95–118.

Fisher, M. (2009). *Capitalist Realism: Is There No Alternative?* Winchester and Washington: Zero Books.

Foucault, M. (1991). *Discipline and Punish: The Birth of the Prison*. Penguin.

Frase, P. (2016). *Four Futures*. London: Verso.

Fuchs, C. (2016). Henryk Grossmann 2.0: a Critique of Paul Mason's Book "PostCapitalism: a Guide to Our Future." *TripleC*, 14(1).

Gat, A. (1989). *The Origins of Military Thought: From the Enlightenment to Clausewitz*. New York: Clarendon Press.

Gerratana, V. (1973). Marx and Darwin. *New Left Review*, 1(82), pp. 60–82.

Giddens, A. (1981). *A Contemporary Critique of Historical Materialism*. Houndmills, England: Macmillan.

Gilbert, F. (1986). Machiavelli: The Renaissance Art of War. In: P. Paret, ed., *Makers of Modern Strategy from Machiavelli to the Nuclear Age*. Princeton: Princeton University Press, pp. 11–31.

Gottlieb, R.S. (1985). Forces of Production and Social Primacy. *Social Theory and Practice*, 11(1), pp. 1–23.

Gould, J. and Lewontin, R. (1979). The Spandrels of San Marco and the Panglossian Paradigm: a Critique of the Adaptationist Programme. *Proceedings of the Royal Society of London. Series B. Biological Sciences*, 205(1161), pp. 581–598.

Graeber, D. (2018). *Bullshit Jobs*. New York: Simon & Schuster Paperbacks.

Graeber, D. and Wengrow, D. (2021). *The Dawn of Everything: A New History of Humanity*. UK: Allen Lane.

Gramsci, A. (1999). *Selections from the Prison Notebooks of Antonio Gramsci*. London: ElecBook.

Gramsci, A. (2000). *The Antonio Gramsci Reader: Selected Writings 1916-1935*. New York: New York University Press.

Greenfield, A. (2018). *Radical Technologies: The Design of Everyday Life*. London, New York: Verso.

Hacking, I. (1996). The Looping Effects of Human Kinds. In: D. Sperber, D. Premack, and J. Premack, eds. *Causal Cognition: A Multidisciplinary Debate*. Oxford: Clarendon Press.

Haig, D. (2013). Proximate and Ultimate Causes: How Come? And What For? *Biology and Philosophy*, 28, 781-786.

Haldon, J.F. (1993). *The State and the Tributary Mode of Production*. London; New York: Verso.

Harman, C. (1986). Base and Superstructure. *International Socialism*, 2(32), pp. 3–44.

Harnecker, M. (1974). *Les Concepts Elementaires du Materialisme Historique.* Bruxelles: Contradictions.

Harvey, D. (1982a). *The Limits to Capital.* Oxford: Basil Blackwell Publisher.

Harvey, D. (1982b). *The Limits to Capital.* Oxford: Basil Blackwell Publisher.

Hawkins, M. (1997). *Social Darwinism in European and American thought, 1860-1945: Nature as Model and Nature as Threat*. Cambridge, UK; New York: Cambridge University Press.

Hayek, F. (1945). The Use of Knowledge in Society. *The American Economic Review*, 35(4), pp. 519–530.

Hayek, F. (1948). *Individualism and Economic Order*. London: Routledge.

Hayek, F. (1960). *The Constitution of Liberty*. London: Routledge & Kegan Paul.

Hayek, V. (2000). *Collectivist Economic Planning*. London: Routledge.

Hilferding, R. (2007). *Finance Capital: A Study of the Latest Phase of Capitalist Development*. London; Boston: Routledge & Kegan Paul.

Hindess, B. and Hirst, P. Q. (2018). *Pre-Capitalist Modes of Production*. London: Routledge.

Hodges, H. (1996). *Technology in the Ancient World*. London: Michael O'mara Books.

Holmstrom, N. (1983). Rationality and Revolution. *Canadian Journal of Philosophy*, 13(3), pp. 305–325.

Hughes, L. (1998). *Russia in the age of Peter the Great*. New Haven; London: Yale University Press.

Joseph, P. (2017). *The New Human Rights Movement: Reinventing the Economy to End Oppression*. Dallas: BenBella Books.

Kitcher, P. (1982). *Abusing Science the Case against Creationism*. Cambridge, Mass: MIT Press.

Kropotkin, P. (1902). *Mutual Aid: A Factor in Evolution*. London: Heinemann.

Kubik, T.R.W. (1997). Is Machiavelli's Canon Spiked? Practical Reading in Military History. *The Journal of Military History*, 61(1), p. 7.

Kuhn, T.S. (1970). *The Structure of Scientific Revolutions*. University of Chicago Press.

Laibman, D. (2008). *Deep History: A Study in Social Evolution and Human Potential.* Albany, Ny: State University of New York Press.

Laibman, D. (2019). Forces and Relations of Production. In: M. Vidal, T. Smith, T. Rotta and P. Prew, eds., *The Oxford Handbook of Karl Marx*. New York: Oxford University Press.

Lakatos, I. (1968). Criticism and The Methodology of Scientific Research Programmes. *Proceedings of the Aristotelian Society*, 69, pp. 149-186.

Lakatos, I. (1978). *The Methodology of Scientific Research Programmes*. Cambridge; New York: Cambridge University Press.

Lakatos, I. and Zahar, E. (1978). Why Did Copernicus' Research Program Supersede Ptolemy's? In: *The Methodology of Scientific Research Programmes*. Cambridge; New York: Cambridge University Press.

Lange, O. (1936). On the Economic Theory of Socialism: Part One. *The Review of Economic Studies*, 4(1), p. 53.

Lange, O. (1937). On the Economic Theory of Socialism: Part Two. *The Review of Economic Studies*, 4(1), p. 53.

Lattansi-Silveus, L. (2018). Societal Selection and Historical Materialism. *Science & Society*, 82(3), pp. 335–359.

Lenin, V. (2010). *Imperialism: The Highest Stage of Capitalism*. London: Penguin.

Lenin, V.I. (1989). *What is to be Done?* London; New York: Penguin Books.

Leopold, D. (2013). Marxism and Ideology: from Marx to Althusser. In: *The Oxford Handbook of Political Ideologies*. New York: Oxford University Press.

Levine, A. and Sober, E. (1985). What's Historical About Historical Materialism? *The Journal of Philosophy*, 82(6), p. 304.

Levine, A. and Sober, E. (2002). A Reply to Paul Nolan's 'What's Darwinian About Historical Materialism? A Critique of Levine and Sober.'. *Historical Materialism*, 10(2), pp. 143-169.

Levine, A. and Wright, E.O. (1980). Rationality and Class Struggle. *New Left Review*, 123(1).

Lindisfarne, N. and Neale, J. (2021). All Things Being Equal. *Ecologist*. https://theecologist.org/2021/dec/17/all-things-being-equal

Little, D. (1986). *The Scientific Marx*. Minneapolis: University of Minnesota Press.

Little, D. (1991). *Varieties of Social Explanation: An Introduction to the Philosophy of Social Science*. Boulder, Colorado: Westview Press, Cop.

Ludwig Von Mises (1990). *Economic Calculation in the Socialist Commonwealth*. Auburn: Ludwig Von Mises Institute.

Lukacs, G. (1968). *History and Class Consciousness*. Cambridge, Mass: MIT Press.

Luxemburg, R. (1919). *The Crisis in the German Social-Democracy*. New York: Socialist Publication Society.

Luxemburg, R. (1951). *The Accumulation of Capital*. London: Routledge.

Lyon, D., Haggerty, K. and Ball, K. eds., (2012). *Routledge Handbook of Surveillance Studies*. London: Routledge.

Mandel, E. (2002). *An Introduction to Marxist Economic Theory*. Chippendale: Resistance Books.

Mann, M. (1986). *The Sources of Social Power. 1*. New York: Cambridge University Press.

Marglin, S.A. (1974). What Do Bosses Do? *Review of Radical Political Economics*, 6(2), pp. 60–112.

Marx, K. and Engels, F. (1975a). 'Theses on Feuerbach', in *Karl Marx, Frederick Engels: Collected Works. Vol. 5, Marx and Engels, 1845-47*. London: Lawrence & Wishart.

Marx, K. and Engels, F. (1975b). ‘The German Ideology’, in *Karl Marx, Frederick Engels: Collected Works. Vol. 5, Marx and Engels, 1845-47*. London: Lawrence & Wishart.

Marx, K. and Engels, F. (1976a). ‘The Poverty of Philosophy’, in *Karl Marx, Frederick Engels: Collected Works. Vol. 6, Marx and Engels: 1845-48.* London: Laurence & Wishart.

Marx, K. and Engels, F. (1976b). ‘The Communism of the Rheinischer Beobachter’, in *Karl Marx, Frederick Engels: Collected Works. Vol. 6, Marx and Engels: 1845-48.* London: Laurence & Wishart.

Marx, K. and Engels, F. (1976c). ‘The Communist Manifesto’, in *Karl Marx, Frederick Engels: Collected Works. Vol. 6, Marx and Engels: 1845-48.* London: Laurence & Wishart.

Marx, K. and Engels, F. (1979). ‘The Eighteenth Brumaire of Louis Bonaparte’, in *Karl Marx, Frederick Engels: Collected Works. Vol. 11, Marx and Engels: 1851-53*. London: Lawrence & Wishart.

Marx, K. and Engels, F. (1982). ‘Marx to Pavel Vasilyevitch Annenkov’, in *Karl Marx, Frederick Engels: Collected Works. Vol. 38 Marx and Engels, 1844-51*. London: Lawrence and Wishart.

Marx, K. and Engels, F. (1983). ‘Engels to Marx, 11 or 12 December 1859’ in *Karl Marx, Frederick Engels: Collected works. Vol. 40, Marx and Engels: 1856-59*. London: Lawrence & Wishart.

Marx, K. and Engels, F. (1985a). ‘Marx to Engels, 19 December 1860’, in *Karl Marx, Frederick Engels: Collected works. Vol. 41, Marx and Engels: 1860-1864*. London: Lawrence & Wishart.

Marx, K. and Engels, F. (1985b). *The German ideology*. New York: International Publishers.

Marx, K. and Engels, F. (1987a). ‘Anti-Duhring’, in *Karl Marx, Frederick Engels: Collected Works. Vol 25, Engels.* London: Lawrence & Wishart.

Marx, K. and Engels, F. (1987b). ‘Dialectics of Nature’, in *Karl Marx, Frederick Engels: Collected Works. Vol 25, Engels.* London: Lawrence & Wishart.

Marx, K. and Engels, F. (1987c). ‘Economic Manuscripts of 1857-58’, in *Karl Marx, Frederick Engels: Collected Works. Vol. 28, Karl Marx: 1857-61*. London: Lawrence & Wishart.

Marx, K. and Engels, F. (1987d). ‘Economic Manuscripts of 1857-58’, in *Karl Marx, Frederick Engels: Collected Works. Vol. 29, Karl Marx: 1857-61*. London: Lawrence & Wishart.

Marx, K. and Engels, F. (1989a). ‘Karl Marx’s Funeral’, in *Karl Marx, Frederick Engels: Collected Works. Vol. 24, Marx and Engels, 1874-83*. London: Lawrence & Wishart.

Marx, K. and Engels, F. (1989b). ‘A Contribution to the Critique of Political Economy’, in *Karl Marx, Frederick Engels: Collected Works. Vol. 31, Marx and Engels: 1856-59*. London: Lawrence & Wishart.

Marx, K. and Engels, F. (1990). ‘Introduction to Karl Marx’s The Class Struggle in France, 1848 to 1850’, in *Karl Marx, Frederick Engels: Collected Works. Vol. 27, Engels, 1890-1895*. London: Lawrence and Wishart.

Marx, K. and Engels, F. (1996). ‘Capital Volume 1’, in *Karl Marx, Frederick Engels: Collected Works. Vol 35, Karl Marx, Capital, vol. I*. London: Lawrence & Wishart.

Marx, K. and Engels, F. (1998). ‘Capital Volume 3’, in *Karl Marx, Frederick Engels: Karl Marx, Frederick Engels: collected works. vol. 37, Capital. vol. 3*. London: Lawrence & Wishart.

Mason, P. (2016). *Postcapitalism: A Guide to Our Future*. London: Penguin Books.

Mayr, E. (1961). Cause and Effect in Biology. *Science*, 134(3489), pp. 1501-1506.

Mayr, E. (1993). Proximate and Ultimate Causations. *Biology and Philosophy*, 8(1), pp. 93-94.

Mayr, E. (2003). *What Evolution Is*. London: Phoenix.

McMurtry, J. (1978). *The Structure of Marx’s Worldview*. Princeton: Princeton University Press.

McNeil, W.H. (1982). *The Pursuit of Power: Technology, Armed Force, and Society Since A.D. 1000*. Chicago: University of Chicago.

Meade, J. (1965). *Efficiency, Equality, and the Ownership of Property*. Harvard University Press.

Mill, J.S. (1865). *On Liberty*. London: Longman, Roberts, and Green.

Miller, R. W. (1975). The Consistency of Historical Materialism. Philiosophy & Public Affairs, 4(4), pp. 390-409.

Miller, R.W. (1981). Productive Forces and the Forces of Change: A Review of Gerald A. Cohen, Karl Marx's Theory of History: A Defense. *The Philosophical Review*, 90(1), p. 91.

Milonakis, D. (1997). The Dynamics of History: Structure and Agency in Historical Evolution. *Science & Society*, 61(3), pp. 303–329.

Mohun, S. (1994). *Debates in Value Theory*. Basingstoke: McMillan Press.

Morozov, E. (2012). *The Net Delusion: The Dark Side of Internet Freedom*. New York: Public Affairs.

Munoz, J. (2013). The Power of Marx-Engels Scientific Research Program and its Fulfilled Predictions: A Note on Heterodox Epistemology. *World Review of Political Economy*, 4(1), pp. 63-85.

Nesse, R. M. (2013). Tinbergen's Four Questions, Organized: A Response to Batenson and Laland. *Trends in Ecology and Evolution*, 28, pp. 681-682.

Nolan, P. (2002a). A Darwinian Historical Materialism. In: *Historical Materialism and Social Evolution*. New York: Palgrave Macmillan.

Nolan, P. (2002b). What's Darwinian About Historical Materialism? A Critique of Levine and Sober. *Historical Materialism*, 10(2), pp. 143-169.

Nolan, P. (2006). Why G. A. Cohen Can't Appeal to Charles Darwin to Help Him Defend Karl Marx (But Why Others Can). *Science & Society*, 70(2), pp. 155–179.

Nolan, P. and Carling, A. (2000). Guns, Germs and Steel: A Short History of Everybody for the Last 13,000 Years. *Historical Materialism*, 6(1), pp. 215–264.

Oman, C. (1937). *A History of the Art of War in the Sixteenth Century*. New York: AMS Press.

Phillips, L. and Rozworski, M. (2019). *The People's Republic of Walmart: How the World's Biggest Corporations Are Laying the Foundation for Socialism*. London; New York: Verso.

PlekhanovG.V. (1947). *In Defence of Materialism: The Development of the Monist View of History.* London: Lawrence and Wishart.

Polanyi, K. (2001). *The Great Transformation: The Political and Economic Origins of Our Time*. Boston: Beacon Press.

Popper, K. (1989). Science: Conjectures and Refutations. In: *Conjectures and Refutations*. Cambridge, Mass: Routledge.

Popper, K.R. (1972). *Objective Knowledge.* Oxford: Oxford University Press.

Price, R. (1996). *Maroon Communities: Rebel Slave Communities in the Americas*. London: John's Hopkins University Press.

Prinz, A.M. (1969). Background and Ulterior Motive of Marx's "Preface" of 1859. *Journal of the History of Ideas*, 30(3), p. 437.

Przeworski, A. (1985). *Capitalism and Social Democracy*. Cambridge: Cambridge University Press.

Rediker, M. (2012). *Villains of All Nations: Atlantic Pirates in the Golden Age*. London: Verso.

Ricardo, D. (1911). *The Principles of Political Economy and Taxation*. London: Dent & Sons Ltd.

Rifkin, J. (2014). *The Zero Marginal Cost Society: The Internet of things, the Collaborative commons, and the Eclipse of Capitalism*. New York: St. Martin's Griffin.

Roberts, M. (1996). *Analytical Marxism: A Critique*. London: Verso.

Robinson, C. (2000). *Black Marxism*. London: The University of North Carolina Press.

Robinson, J. (1966). *An Essay on Marxian Economics*. New York: St. Martin's Press.

Roediger, D.R. (2007). *The Wages of Whiteness*. London, New York: Verso.

Roemer, J. (1994). *A Future for Socialism*. Cambridge: Harvard University Press.

Roemer, J. (2017). *A Design for Market Socialism*. Cowles Foundation Discussion Paper No. 2090.

Rogers, E.M. (2003). *Diffusion of Innovations*. 5th ed. New York: Free Press.

Rogers, E.M. and Adhikarya, R. (2017). Diffusion of Innovations: An Up-To-Date Review and Commentary. Annals of the International Communication Association, 1(3), pp. 67-81.

Rorty, R. (1984). The Historiography of Philosophy: Four Genres. In: *Philosophy in History: Essays on the Historiography of Philosophy*. Cambridge: Cambridge University Press.

Rosen, M. and Wolff, J. (1996). The Problem of Ideology. *Aristotelian Society Supplementary Volume*, 70(1), pp. 209–242.

Ruben, D.-H. (1979). *Marxism and Materialism.* Hassocks: Harvester Press, Jan.

Ruben, D.-H. (1981). Cohen, Marx, and the Primacy Thesis. *British Journal of Political Science*, 11(2), pp. 227–234.

Rusche, G. and Kirchheimer, O. (2017). *Punishment and social structure*. London: Routledge.

Sayers, S. (1984). Marxism and the Dialectical Method: A Critique of G. A. Cohen. *Radical Philosophy*, (36).

Schumpeter, J. (1994). *Capitalism, Socialism, and Democracy.* London; New York: Routledge.

Scott, J.C. (2017). *Against the Grain: A Deep History of the Earliest States*. New Haven; London: Yale University Press.

Seely, B. (2003). Historical Patterns in the Scholarship of Technology Transfer. *Comparative Technology Transfer and Society*, 1(1), pp. 7-48.

Sheehan, H. (1993). *Marxism and the Philosophy of Science: A Critical History*. New Jersey: Humanities Press International.

Smith, A. (2014). *The Glasgow Edition of the Works and Correspondence of Adam Smith. Vol. 2, an Inquiry into the Nature and Causes of the Wealth of Nations.* Oxford: Oxford University Press.

Smith, M. (1994). The "Intentional Primacy" of the Relations of Production. *Science & Society*, 58(1), pp. 72–78.

Snowdon, C. (2019). Review: The People's Republic of Walmart: How the World's Biggest Corporations Are Laying the Foundation for Socialism. *Economic Affairs*, 39(2), pp. 283–290.

Starosta, G. and Fitzsimons, A. (2017). Rethinking the Determination of the Value of Labor Power. *Review of Radical Political Economics*, 50(1), pp. 99–115.

Streeck, W. (2017a). *How Will Capitalism End? Essays on a Failing System*. London: Verso.

Streeck, W. (2017b). *How Will Capitalism End? Essays on a Failing System*. London: Verso.

Stuart, D. (2002). "The Arrival of Strangers": Teotihuacan and Tollan in Classic Maya History. In: *Mesoamerica's Classic Heritage: From Teotihuacan to the Aztecs*. Boulder, Colo.: University Press of Colorado.

Teschke, B. (2005). Bourgeois Revolution, State Formation and the Absence of the International. *Historical Materialism*, 13(2), pp. 3-26.

Trotsky, L. (1932). *The Soviet Economy in Danger*. The Militant. Available at: https://www.marxists.org/archive/trotsky/1932/10/sovecon.htm

Trotsky, L. (2004). *The Revolution Betrayed: What is the Soviet Union and Where is it Going?* Mineola: Dover Publications.

Trotsky, L. (2008). *History of the Russian Revolution*. Chicago, Ill.: Haymarket Books.

Urena, E.M. (1977). Marx and Darwin. *History of Political Economy*, 9(4), pp. 548–559.

Urena, E.M. (1981). A Note on "Marx and Darwin." *History of Political Economy*, 13(4), pp. 772–773.

Van der Veen, R.J. and Van Parijs, P. (2006). A Capitalist Road to Communism. *Basic Income Studies*, 1(1).

Van, W. (1953). *From a Logical Point of View: 9 Logico-Philosophical Essays*. Cambridge, Mass.: Harvard Univ. Press.

Weber, M. (2005). *The Protestant Ethic and the Spirit of Capitalism*. London: Routledge.

Wejnert, B. (2002). Integrating Models of Diffusion of Innovations: A Conceptual Framework. Annual Review of Sociology, 28, pp. 297-326.

Wickham, C. (2008) Productive Forces and the Economic Logic of the Feudal Mode of Production. *Historical Materialism*, 16(2), pp. 3-22.

Wood, E.M. (2002). *The Origin of Capitalism: A Longer View*. London; New York: Verso.

Wright, E.O. (2000). Class Counts. Cambridge: Cambridge University Press.

Wright, E.O. (2006). Compass Points. *New Left Review*, 41(1), pp. 93–124.

Wright, E.O. (2010). *Envisioning Real Utopias*. London; New York: Verso.

Wright, E.O., Levine, A. and Sober, E. (1992). *Reconstructing Marxism: Essays on Explanation and the Theory of History*. London: Verso.