

UNCERTAIN GROUNDS: KEY MOVES IN THE MAKING OF MODERNITY,
FROM TUDOR ENGLAND TO THE GLOBALIZED PRESENT

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ABSTRACT

Which historical lens and what scope can capture modernity's complex social, political, economic, and epistemic permutations? Using an historical interpretive lens to explore contingent moments in its making, this work seeks to describe a core dynamic within modernity. In modernity, the assertion of freedom from rooted systems of meaning ushers in radical uncertainty. In response, new certainties are constructed for guiding human action, but being grounded upon indeterminacy these are necessarily provisional and open ended. Uncertainty thus grows in proportion to the expansion of freedom and the abstraction of foundations, making the drives to know and to control insatiable. To narrate a history of this dynamic, I frame it as a series of strategies for grounding upon groundlessness: surveying and mapping, enclosing and improving; risking and insuring. This narrative is largely set in the particular soil of British history, where the discourses surrounding efforts to ground property and knowledge upon new certainties uncovers the contingent nature of truth and legitimacy in modernity. In the Tudor period customary knowledge of the land was delegitimized as estate surveyors began to measure and represent land from the distanced perspective of geometry. In the seventeenth and eighteenth centuries, the discourse of improvement legitimized the practice of enclosure as the means of securing certainty of ownership in order to cultivate endless growth, while Baconian science pursued a parallel strategy. In the eighteenth century, risk was objectified in probability theory and traded in insurance and investment markets. Since the nineteenth century risk management has been applied to populations and has become the guarantor of security and the means of governing societies across the globe. But perpetual efforts to know and contain risks have only generated more insecurity. I conclude that while founded upon freedom, modernity is a compulsion that draws us ever further from the soil of particularity. Using an historical interpretive approach and drawing on the histories of science, capitalism and insurance, as well as theories of modernity, property and risk, this project is an interdisciplinary effort to understand the making of key dynamics within modernity.

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TABLE OF CONTENTS

Abstract	ii
Acknowledgments	iii
Table of Contents	iv
Chapter One: Introduction: The Problem of Uncertainty in Modernity	1
My Argument.....	2
Defining Modernity?.....	3
Historicity and Rootlessness: Classical Critiques of Modernity.....	6
Twentieth Century Theories of Modernity.....	9
Literature Crucial to my Argument.....	15
Interdisciplinary Methodology.....	19
Historical Methodology.....	20
The Boundaries of this Project.....	28
Capitalism and Modernity.....	32
Property and Modernity.....	43
Chapter Summaries.....	46
Chapter Two: Surveying and Mapping in Early Modern England	55
The World as Object and the Future as Open.....	59
Late Medieval Anxiety.....	63
The Abstract Representation of the World: Vision and Quantification.....	69
○ <i>The Qualitative World View</i>	70
○ <i>The Abstract Standards of Quantitative Reality</i>	76
○ <i>The Objectification of Time</i>	78
○ <i>The Objectification of Space</i>	82
○ <i>The View From Above</i>	88
○ <i>The Rise of Cartesian Perspectivalism in Painting</i>	93
Land and Knowledge in Sixteenth Century England.....	100

○ <i>Tudor Instability</i>	100
○ <i>Early Surveying Practices</i>	102
○ <i>The Advantages of Modern Surveying</i>	103
○ <i>Customary Knowledge of the Land</i>	107
○ <i>The Legitimizing Discourse of Scientific Surveying</i>	111
○ <i>Moral Opposition to Surveying</i>	116
○ <i>Defending the “Upstart Art” of Surveying</i>	118
○ <i>Delegitimizing Custom</i>	121
○ <i>The Discursive Power Maps</i>	124
○ <i>Estate Maps</i>	133
Conclusion.....	138
Chapter 3: Enclosing and Improving in England’s Transition to Modernity	140
Modernity as Boundary Breaking and Boundary Making.....	144
Enclosure and Improvement in the Tudor period.....	147
○ <i>Early Enclosures</i>	147
<i>Widespread Disapproval of Enclosures in the Tudor Period</i>	151
○ <i>The Practical Origins of the Idea of Improvement</i>	158
The Improvement of Knowledge.....	160
○ <i>Francis Bacon’s Project</i>	160
○ <i>Provisional Certainty and the Enclosing Logic of the Natural</i>	166
○ <i>Fact Determination in Early Modern Law and Science</i>	175
Enclosures and the Discourse of Improvement in 17 th and 18 th England.....	186
○ <i>The Materiality of Enclosures: Hedges and Resistance</i>	186
○ <i>The Discourse of Improvement</i>	192
- <i>The Defensive Origins of Hard-selling Improvement</i>	192
- <i>Ideas and Events Shaping Improvement Discourse</i>	195
- <i>The Hartlib Circle and the Science and Spirit of Improvement</i>	199
- <i>The Idea of Endless Expansion</i>	206
- <i>Fertility and Abundance in Agriculture, Science and the Economy</i>	207
- <i>The Appetite for Accumulation</i>	211
- <i>Doubting Endless Progress: Cyclical History and Degeneration</i>	213
- <i>William Petty: Accumulating Proofs of Progress</i>	219
- <i>Improvement’s Other: Waste as a Potential Desert</i>	222
- <i>The Threat of Waste: the Horror of the Void</i>	226
- <i>Contempt for Wastes and Commons</i>	233
The Eighteenth Century: Entrenching Private Property and Landscaping Nature.....	236
○ <i>Legal and Historical Justifications of Private Property</i>	236
○ <i>The Law Steps in: The Parliamentary Enclosure Movement</i>	241
○ <i>Nature Estranged and Imitated, Display/Erasure in English Landscape Gardens</i>	246

○ <i>Enclosing and Accumulating Nature's Objects: Linnaean Classification</i>	256
Conclusion.....	267
Chapter Four: Risk and Insurance in Eighteenth Century England	270
Roots and Wings.....	271
What is Risk?.....	273
○ <i>Risk Literature</i>	273
○ <i>Defining Risk</i>	275
○ <i>Games of Chance: Pre-modern Forerunners of Risk</i>	278
○ <i>What Makes Risk Modern?</i>	281
The Emergence of Probability Theory.....	283
○ <i>Real World Applications of Probability Theory</i>	286
The Adventure of Investment: 1690s to 1720s.....	290
○ <i>The Trade in Risk: a Crisis in Public Finance Resolved</i>	290
○ <i>Frenzied Investment: the South Seas Bubble and Critiques of Credit</i>	296
Early Insurance Schemes.....	299
Opposition to Insurance.....	304
○ <i>The Sin of Gambling in a Divinely Ordered World</i>	309
○ <i>Gambling as a Threat to the Social Order</i>	312
How Insurance Achieved Legitimacy.....	317
○ <i>From Faith in Providence to Trust in Abstract Systems</i>	317
Conclusion.....	323
Chapter Five: Surveying and Mapping, Enclosing and Improving “The Social” in Victorian Britain	325
Technologies for Overcoming Distance: The Census and Statistical Representation...330	
○ <i>The Census</i>	330
○ <i>Opposition to the Census</i>	333
○ <i>Resistance and Recognition: Public Responses to the Census</i>	336
○ <i>Statistics as a Surveying Instrument</i>	342
○ <i>The 1830's Statistical Movement: 'Objective' Knowledge, Moral Reform</i>	348
○ <i>Dickens' Critique of the Statistical Societies</i>	354
Statistics and the State: the General Registry Office and Rational Bureaucracy.....	357
Patterns in the Aggregate: The Law of Large Numbers and the Average Man.....	371
Statistical Fatalism?.....	378
Binding and Dividing: The Constitution of the Social.....	383
Developments in Nineteenth Century Insurance.....	395
○ <i>Actuarialism</i>	395
○ <i>Classifying Risks: Selecting Lives</i>	398

○ <i>Actuaries Professionalize, the Government Scrutinizes</i>	400
○ <i>Friendly Societies</i>	401
○ <i>Industrial Life Insurance</i>	404
○ <i>Insurers as Investors</i>	405
The State’s Classification and Management of Risks.....	408
○ <i>The New Poor Law: Containing the Risk of Pauperism</i>	409
○ <i>Bentham’s Rational Calculus and Pauper Classification</i>	414
○ <i>Malthus Returns: the Poor as Surplus Population or Waste</i>	418
Conclusion.....	423

Chapter Six: Risk and Insurance since the late 19th Century: from ‘Social Property’ to ‘Risk Society.’.....425

The Shift towards Socialized Insurance in the Late 19 th Century.....	426
Social Property?.....	431
○ <i>Early 20th Century Insurance in Britain</i>	431
○ <i>Towards the Welfare State</i>	442
○ <i>The Post-War Expansion of the Welfare State: A Global Story</i>	449
The Return of Insecurity: Neoliberalism.....	459
The Insurance Industry since the Post-War Period.....	466
○ <i>Partners in Risk Management: Governments and the Insurance Industry</i>	467
○ <i>Insurance and the Economy</i>	471
○ <i>Insurance and the Law</i>	474
○ <i>Insurance as a Social Regulator</i>	476
○ <i>The Cultural Footprint of Private Insurance</i>	482
- Risk Embracing.....	482
- Risk Consciousness and the Hypermarketing of Insecurity... ..	487
Conclusion.....	491

Chapter Seven: Modernity as Compulsion: Symptoms of Unfreedom and Ideas for Recovery.....505

Summary of The Dissertation.....	506
Modernity as Monster, Iron Cage, and Juggernaut.....	511
Addiction to Modernity.....	514
Compulsion, Neurasthenia, and Doubt.....	520

Modern Shelters from Modern Storms.....	523
○ <i>The Global Financial Crisis of 2008</i>	524
○ <i>Climate Change</i>	533
○ <i>The Global Refugee Crisis</i>	536
Kicking the Habit? Practicing New Ways of Seeing and Being.....	539
○ <i>The Aesthetic Critique of Modernity</i>	541
○ <i>Contemporary Practices of Social and Aesthetic Critique</i>	545
Bibliography	554

Chapter One

Introduction: The Problem of Uncertainty in Modernity

In the spring of 2014, a passenger plane flying from Kuala Lumpur to Beijing went missing. After five years and more than US\$200 million spent searching the depths of the Indian Ocean, nothing has been found that can explain what happened to flight MH370. While the prolonged media attention given to its disappearance might be explained by the 24 hour news cycle's unquenchable thirst for dramatic events and, less cynically, by the tragedy of 239 lives lost, it seemed to me also to reflect something of the larger condition of modernity. Most of us can sympathize with the horror experienced by the relatives of the missing passengers. Yet, when we compare the attention and resources spent in searching for MH370, with what is spent in addressing, say, the regular and massive loss of life due to preventable water-borne diseases, the peculiarity of the way that we, as moderns¹ contend with insecurity, uncertainty or mysterious misfortune is made a little more apparent. It was both the rarity of such a mystery- of something eluding the seemingly infinite reach of our knowledge today- and the refusal to accept the unexplained nature of the plane's disappearance that struck me as particularly modern about the search for MH370. The idea that a planeload of people could vanish, in spite of advanced satellite technology, in spite of our faith in the science and abstract systems that safeguard our

¹ I will address what I mean by “moderns” and “the condition of modernity” more fully below. For the moment, I will confine the definition of “moderns” to people, living in the condition of modernity, that is, large scale societies, founded not on tradition or a metaphysical system of belief but on an impersonal quest for objective truth and certainty. Because capitalism is a central carrier of modern values and social relations, the globalization of capitalism over the last half century has also globalized modernity. Even societies that continue to be founded on tradition are not untouched by modernity in its socio-economic arrangements. So when I say “we, moderns” I mean global society, not in its entirety perhaps, but generally.

improbable flight through the sky, strikes at the root of the problem of modernity, the lacunae at its core, and therefore, its greatest longing: the need for certainty, for a guarantee of security.

The absence of that guarantee is what gives shape and movement to modernity, what propels the fashioning of the projects, systems and devices in which we place our faith, and under which we shelter as we move through the world. Under the condition of modernity, we attempt to anticipate, think up mitigating plans for, and hedge and insure against every contingency. These efforts betray an abhorrence of ambivalence, a hostility to mystery, a rage against the silence of the unexplained, which nevertheless fails to protect us from exposure to uncertainty. This intolerance of and our particular exposure to uncertainty is both the root and the fruit of modernity's obsessional drive to know and to control, and the subject of this dissertation.

My Argument

This work seeks to understand an essential dynamic driving modernity. I argue that in modernity, the assertion of freedom from rooted systems of meaning ushers in radical uncertainty. In response, new certainties are constructed for guiding human action, but being grounded upon indeterminacy, these are necessarily provisional and open ended. Uncertainty thus grows in proportion to the expansion of human freedom and the abstraction of foundations, making the twin drives to know and to control insatiable. To narrate a history of this dynamic, I frame it as a series of strategies for grounding upon groundlessness: surveying and mapping, enclosing and improving; risking and insuring. Each of these strategies is set in a particular historical moment of transition towards a modern way of being in the world, from the Tudor period in England to the globalized present.

Defining Modernity?

Modernity is a slippery topic: its historical borders elude sure definition. Ask when it began and you might hear wildly diverging answers, stretching from the influence of the legal and political systems of ancient Rome, to Nietzsche's declaration, in the late nineteenth century, that "God is dead."² Similarly, while some, like myself, view the present time as belonging to modernity, others believe that modernity ended decades ago, and that ours is a post-modern period.³ The 'when' of modernity depends crucially on the 'what' of modernity. Those who argue that the core feature of modernity is capitalism may draw the starting line at the changing relations of property and labour in sixteenth century England.⁴ Others have argued that modernity emerged with the rise of secularism, with the Enlightenment, the French Revolution, the expansion of European colonial power, or the domination of nature; each of these has its own starting point.⁵

² José María Beneyto and Justo Corti Varela, *At the Origins of Modernity: Francisco de Vitoria and the Discovery of International Law*, (Cham, Switzerland: Springer International Publishing 2017).

³ Jean-François Lyotard, *The Postmodern Condition: A Report on Knowledge*, Vol. 10. (Minneapolis: University of Minnesota Press, 1984).

⁴ Or they may see industrial production in nineteenth century England or the abstraction of money in thirteenth century Florence as the true start of modernity. This is because, as with modernity, consensus on the origins of capitalism has been elusive, because there are competing theories on what constitutes capitalism's key features. I will discuss some of these theories, below, particularly those essential to my argument.

⁵ For the division between nature and culture in modernity see Louis Dupré, *Passage to Modernity: An Essay in the Hermeneutics of Nature and Culture*, (New Haven, CT: Yale University Press, 1995). For the role of the French Revolution in constituting modernity, see Fehér, Ferenc, ed. *The French Revolution and the Birth of Modernity* 56, no. 1. (Berkeley, CA: University of California Press, 1990). I will discuss the relationship between European conquest, colonialism and modernity further below.

There are fair arguments to be made for any one of these beginnings, but I think that I am with the majority of scholars of modernity in contending that modernity encompasses all of these developments, which took place, for the most part, after the sixteenth century in Europe. What matters is not pinning down a precise starting date for modernity but trying to see with greater clarity which of its elements have been continuous over time, and how such elements have shaped the way that people experience the world.

In the process of writing this dissertation, when speaking to people outside of academia I was surprised to learn that many had never heard the term ‘modernity’. They were, of course, familiar with the term “modern”, and I think that their general sense of what is modern- “now”, “recent times”, “not the ‘old school’”- is essentially correct. Most scholars identify “modernity” as a cluster of certain institutional, socio-economic, cultural and epistemological features and patterns. So, for instance, modernity is associated with increasing tendencies towards industrialization, urbanization, secular authority, nation states, social differentiation, instrumental rationality, and a scientific worldview. But the layperson’s instinct, that the modern is distinct from the past and its traditions, captures something crucial about its character.⁶

Not only do we, in everyday language, still use ‘modern’ to distinguish ‘our times’ from the past, but we also use it to distinguish our way of life, now, from so-called ‘traditional’ ways of life. But this easy categorization of modernity as post-traditional is misleading, for modernity

⁶ In fact, this is how the term ‘modern’ has been used throughout its history. When it first appeared in the fifth century, as the Latin term *modernus*, it was used to indicate the present, Christian, period, as distinct from the pagan period of Roman rule. And when the word ‘modern’ first appeared in English in the early seventeenth century, it connoted “our age”, as distinct from past ages. See Peter Osborne, *The Politics of Time: Modernity and Avant-Garde*, (London: Verso, 1995), 9-11; and R.J. Johnston, D. Gregory, G. A. Pratt, and M. Watts, (eds.), *The Dictionary of Human Geography*, 4th ed. (Malden, MA, Blackwell, 2000), 513.

has become a tradition in itself. It has been a way of being in the world for centuries now and not only in the west.⁷ Knowing this, and tracing the development of that tradition, is important for the same reason that any historical study is important. Think of the array of problems, worries and even fascinations that draw our attention on any given day in today's world: the bitter cultural and political divide in the United States, the rhetoric about "fake news", the challenges of pluralisation and immigration in Europe, the protracted nature of the global refugee crisis, issues of surveillance and privacy on the internet, the looming end point threatened by global warming, the self-driving car, the dream of colonizing Mars. Each of these issues are the fruits of modernity. If we tell ourselves that they are wholly new, arriving from nowhere, then we are powerless before them, and cannot make any meaning of them, as if we were the paralyzed observers of a dream peopled with clowns and monsters.

In the following section, therefore, I will introduce the features of modernity that are essential to my thesis, through a survey of key literatures. I focus first, on the historicity and radical uncertainty of modernity, as observed by three classical critics of modernity: Marx, Weber and Nietzsche. I follow this with a brief account of twentieth century theories of modernity, including Critical Theory and Risk Theory. Next, I highlight those scholars who have most influenced or helped me to articulate my core argument, including Kosselleck, Bauman,

⁷ While most scholars of modernity do agree that the developments associated with modernity – which I will discuss in detail below – first emerged in Europe, non-European histories of modernity can also be said to extend as far back as European modernity. Aside from the fact that certain elements of what we call modernity may have been present in other regions in the world, it can also be argued that the trade with and conquest of non-European regions from the sixteenth century on thrust most of the globe into at least some socio-economic and cultural aspects of modernity. Some post-colonial theorists see the European encounters with the "new world" as the beginning of modernity. See, for example, Enrique D. Dussel, Javier Krauel, and Virginia C. Tuma, "Europe, Modernity, and Eurocentrism." *Nepantla: Views from South* 1, no. 3 (2000): 465-478. For an argument that modernity is itself a tradition, see , Eric Hobsbawm and Terence Ranger, eds, *The Invention of Tradition* (Cambridge: Cambridge UP, 1983).

Heller and Giddens. Then, because my project is both interdisciplinary and historical, I indicate the range of historical, legal, and philosophical scholarship informing my research. In the remaining sections of this introduction I outline my historical methodology, the boundaries and limitations I have had to place upon my topic, the role of capitalism and property in my account of modernity, and finally, a summary of the chapters to follow.

Historicity and Rootlessness: Classical Critiques of Modernity

One way of trying to grasp what is distinct about the ‘tradition’ of modernity is to compare it with other “pre-modern” traditions. Without wishing to efface the diversity of those other traditions, I do want to suggest that modernity involves a particular attitude to the past. It is not necessarily a rejection of the past, but it is a self-conscious differentiation of “our times” from the times preceding them. In attempting to understand this attitude to the past, and the essence of modernity itself, few can guide us better than the classical critics of modernity, Marx, Nietzsche, and Weber.

In the 1848 *Communist Manifesto*, Marx wrote of the profound social transformations wrought by capitalist relations, noting that

Constant revolutionizing of production, uninterrupted disturbance of all social conditions, everlasting uncertainty and agitation distinguish the bourgeois epoch from all earlier ones. All fixed, fast-frozen relations, with their train of ancient and venerable prejudices and opinions, are swept away, all new-formed ones become antiquated before they can ossify. All that is solid melts into air....⁸

In his 1872 work, *The Birth of Tragedy*, Nietzsche seems to echo Marx in stressing the fragmented and weightless experience of modernity: “[N]ow all the rigid, hostile barriers, which

⁸ Karl Marx (1818-1883) *The Communist Manifesto*. (London: Pluto Press, 2008), 38.

necessity, caprice or ‘impudent fashion’ have established between human beings, break asunder.... as if the veil of Maja has been torn apart, so that mere shreds of it flutter before the mysterious primordial unity.” The modern person “has forgotten how to walk and talk and is on the brink of flying and dancing up and away into the air above.”⁹ In just a few sentences, both Marx and Nietzsche articulated much of the experience of modernity: the feeling that the foundations and solidity of the past are crumbling beneath us; that this evaporation is accelerating so that nothing can take root; and the resulting, dizzying, sense of being unmoored, weightless in a world emptied of reference points.

At a later point in *The Birth of Tragedy*, Nietzsche compares his own time to the culture of the Greeks, a culture powerfully nourished by the myths of Dionysius and Apollo: “Now place beside this type of mythical culture abstract man, without guidance from myth... think of a culture which has no secure and sacred place of origin and which is condemned to exhaust every possibility and to seek meagre nourishment from all other cultures; that is the present.”¹⁰ For Nietzsche then, modern, “abstract” people are rootless, and somehow orphaned, disinherited from their originating soil, and from the guidance and meaning provided by mythology.

A few decades later, Weber described “the fate of our times” as characterized by “rationalization and intellectualization, and above all ‘the disenchantment of the world.’” “Now”, he said, “it is only within the smallest and most intimate circles, in personal human situations, in *pianissimo*, that something is pulsating that corresponds to the prophetic *pneuma*, which in

⁹ Friedrich Nietzsche, *The Birth of Tragedy and Other Writings*, eds. Raymond Guess and Ronald Speirs, trans. by Ronald Speirs, (Cambridge, U.K.; New York: Cambridge University Press, 1999) 18.

¹⁰ Nietzsche, *The Birth of Tragedy*, 108-109.

former times, swept through the great communities like a firebrand, welding them together.¹¹

Pneuma, an ancient Greek word for the “breath of life,” was a generative force within the Stoic cosmology, and it corresponds roughly to “spirit” or “soul” in Judeo-Christianity. Thus, like Nietzsche, Weber viewed modernity as the dissolution of a cosmic and unifying force, the erosion of the grounds upon which meaning is made.

If being modern means imagining the past as more solid, integrated and secure than the present, it can also mean imagining the future as frighteningly free. The future in modernity is an empty space beyond the precipice of the present: nothing is yet formed; so that to step into the future is to embrace a radical freedom and an obligation to shape the future. This conception of the future as open and contingent upon our actions in the present is central to the experience and history of modernity.¹² Over the last five centuries this orientation towards an open future has manifested itself in strategies for containing uncertainty while retaining freedom. My thesis demonstrates such strategies at work in a series of particular historical processes set largely in English history: the emergence of scientific surveying and mapping in Tudor England, the practice of enclosure and the discourse of improvement in the seventeenth and eighteenth

¹¹ Max Weber “Science as a Vocation” in *Max Weber: Essays in Sociology*, eds. H.H Gerth and C. Wright Mills; preface by Bryan S. Turner, 1991 (1948) (London: Routledge, 1998), 155.

¹² I will discuss Kosselleck’s theory of modern time consciousness further below. Please see Reinhardt Kosselleck, *Futures Past: On the Semantics of Historical Time*, (Cambridge, MA: MIT Press, 1985). On the historicization of temporality, see Michael Pickering, “Experience as Horizon: Koselleck, Expectation and Historical Time,” *Cultural Studies* 18, no. 2-3 (2004): 271; and Anders Schinkel, “Imagination as a Category of History: An Essay Concerning Koselleck’s Concepts of *Erfahrungsraum* and *Erwartungshorizont*,” *History and Theory* 44, no.1 (2005): 42.

centuries, and the rise of risk and insurance from the eighteenth century to today. I argue that in each of these processes, new foundations- forms of certainty, authority and truth- were fashioned upon an ever-shifting ground of indeterminacy. I conclude that the impermanence of such foundations has only further exposed us to, rather than sheltered us from, uncertainty.

Twentieth Century Theories of Modernity

Whether they focused on its economic and political features (Marx and Engels), its philosophical meaning (Kierkegaard, Nietzsche), its sociological formations (Weber, Durkheim, Simmel, Tonnies) or its psychological (Freud) import, classical theorists recognized that modernity was made up of contradictory forces: accompanying ever greater scientific and technological mastery of nature and the freedom of individual subjects were tendencies towards social fragmentation, alienation and new forms of domination.¹³ Some of these theorists were more optimistic than others that these contradictions could be resolved. Marx, for example, who did not live to see the doubts of the fin-de-siècle era or the horrors of the First World War, was much more optimistic about our ability to control the progress of modernity than Weber could be. Twentieth century thought about the nature of modernity can be very roughly mapped according to the influence of such optimistic or pessimistic visions, according to its treatment as an object of either scientific

¹³ While each of these thinkers influenced the study of modernity in the twentieth century it was the discipline of sociology which was formed most directly in relation to modernity, and which remains, along with social theory, dedicated to the study of changes in the social order. For the link between modernity, sociology and social theory please see Gerard Delanty, “The Foundations of Social Theory” in *The New Blackwell Companion to Social Theory*, ed. Bryan S. Turner, (Oxford: Wiley-Blackwell, 2009), 19; Peter Wagner, *A Sociology of Modernity: Liberty and Discipline* (London and New York: Routledge, 1994), ix; and Bryan s Turner, *Max Weber: From History to Modernity*, (London & New York: Routledge, 1993), iiv.

knowledge or historical, philosophical or aesthetic interpretation, and according to American versus European intellectual traditions.¹⁴

Critical Theory was perhaps the most prominent theoretical response to modernity in Europe in the first half of the twentieth century. From the nineteen thirties, scholars associated with the “Frankfurt” school, including Marcuse, Adorno, Horkheimer and Fromm, pursued an alternative to the economic determinism and positivist methodology of orthodox Marxism. Drawing on Freud, Weber, and Lukacs, among others, Critical Theory was an interdisciplinary project that used an interpretive approach and incorporated culture and subjectivity in its critique of rationalization, capitalism and totalitarianism in modern society. Despite their ultimate objective of effecting social change that would lead to the emancipation of the human subject, Critical Theorists were generally skeptical of the Enlightenment project, and tended towards a pessimistic diagnosis of human agency within mass society and modern systems of domination. However, some, such as Marcuse, did see the possibility of new forms of human subjectivity emancipating people from repressive social structures.¹⁵

Another major European philosophical approach to the problem of modernity was Existentialism. First developing in roughly the same period as Critical Theory, and also drawing on phenomenology and psychoanalytic theory, Existentialism came to prominence with Sartre

¹⁴ One response to modernity that emerged in both American and Europe was the late nineteenth and early twentieth century artistic movement called “modernism.” Architects, musicians, writers and visual artists began to break with traditional forms of representation and to express the experience of modernity through novel forms. See, for example, Tim Armstrong, *Modernism: A Cultural History*. Vol. 1. (Cambridge, UK: Polity, 2005).

¹⁵ Arnold Farr, 2013, “Herbert Marcuse,” *Stanford Encyclopedia of Philosophy*, <https://plato.stanford.edu/entries/marcuse/#PheMar>.

and de Beauvoir in the late 1940s and the 1950s. Existentialists stressed the primacy of existence over essence and the responsibility of individual subjects to recognize and act on their freedom.

¹⁶ By the late 1950s and early 60s, however, the tendency to focus on the subjective experience and openness of modernity was challenged by a number of theorists, including Levi-Strauss, Althusser, and Barthes. Drawing on Saussurean linguistics, and employing social scientific methodology, these theorists attended to the structural conditions and interrelations in which individual lives were constituted.¹⁷ Before long, structuralism itself was criticized for swinging too far in the directions of positivism, determinism and ahistoricism. While Foucault, Derrida, Barthes, Deleuze, Butler, and others did not deny the importance of the structural forces mediating human experience and meaning, they did emphasize the plurality, nuance and complexity of relations between structures and subjects.¹⁸

¹⁶ Key works in this tradition include Martin Heidegger, *Being and Time* (Oxford: Blackwell, 1962); Albert Camus, *The Myth of Sisyphus* (London: Penguin, 2000); and Jean-Paul Sartre, *Being and Nothingness* (London and New York: Routledge, 2003).

¹⁷ See Claude Levi-Strauss, *The Elementary Structures of Kinship*, no. 340. (Boston; Beacon Press, 1969) and *Structural Anthropology*, trans. by Claire Jacobson and Brooke Grundfest Schoepf, (New York: Basic Books, Inc, 1958); Roland Barthes, *Mythologies* (Montreal, Canada: Le Seuil, 2015; Louis Althusser, *For Marx*, Vol. 2. (London: Verso, 2005); and Jacques Lacan, *Ecrits: The First Complete Edition in English*. (New York: W.W. Norton & Company, 2006).

¹⁸ See, for example, Michel Foucault, *The Order of Things: An Archeology of the Human Sciences*, (New York: Vintage Books, 1970); Jacques Derrida, *Of Grammatology*, trans. by Gayatri Chakravorty Spivak, (Baltimore, MD: Johns Hopkins University Press, 1976); Julia Kristeva, *Desire in Language: A Semiotic Approach to Literature and Art*, ed. Leon S. Roudiez, trans. by Thomas Gora, Alice Jardine, and Leon S. Roudiez, (New York: Columbia University Press, 1980); Luce Irigaray, *This Sex Which Is Not One*, trans. Catherine Porter with Carolyn Burke, (Ithaca: Cornell University Press, 1985); and Gilles Deleuze and Félix Guattari. *Anti-Oedipus*, trans. Robert Hurley, Mark Seem, and Helen R. Lane, (New York: Viking Press, 1977).

In America, the Marxism, existentialism and psychoanalysis that were prominent in European thought were peripheral to theories of modernity. Instead, social theory in America was shaped by the pragmatist philosophy of C Pierce and William James, and the social scientific approach of classical sociological theory. In the economic and political optimism of post war America, Parsons's structural functionalist theory of modern society came to dominate. This theory described social change as a progressive evolution towards both functional differentiation and structures that facilitated social integration. It also served as the basis of the modernization theory of development, which constructed models of the transition from tradition to modernity, with a particular focus on economic and political development in third world countries.

By the turn of the 1980s the poststructuralist and deconstructionist theories that had been circulating in literary criticism and in continental European social theory for decades began to gain a wider purchase across the social sciences. This constellation of ideas called into question the certainties, structures, and narratives that had prevailed since the age of the Enlightenment, and was given the moniker "postmodernism." Some argued that the solid structures and identities associated with modernism- especially the belief in an objective reality - were in the present period giving way to a "post-modern condition", in which the apprehension of reality was acknowledged to be contingent, fragmented, ambivalent, and socially constructed. You will note that this way of defining the present, as against a past period of stability and solidity, closely resembles the descriptions of the present by Marx, Nietzsche and Weber in the quotations above.

At the same time, this resemblance highlights a fundamental disagreement about the nature of modernity. The “post” in postmodern suggests the transcendence of modernity as a historical period, but the contrast between a contingent postmodernity and fixed and stable modernity ignores the nineteenth century perceptions of the present as unmoored and abounding in uncertainty.¹⁹ Which is it then? Is modernity a condition of rigid orderliness or of restless uncertainty? I contend, along with some contemporary theorists, that it is both, and that the interdependence of these characteristics accounts for modernity’s dynamism.

When postmodernism spread throughout the social sciences in the 1980s its definition and its relationship to modernity were widely debated, and this set of debates inspired a renewed scholarly interest in clarifying the nature of modernity itself. What followed, from the mid-eighties to the turn of the century, were some of the most comprehensive attempts to articulate the nature of modernity since the classical theories of the late nineteenth and early twentieth century.²⁰ One important response to the challenge of postmodernity can be found in the work of

¹⁹ While the name *suggests* that modernity has been left behind, the key claims of post-modern theory do not centre on this point. Rather, like much of the twentieth century Critical Theory upon which it draws, post-modernism, or postmodernity, is much more complex. For some comprehensive accounts of the range of its positions see Fredric Jameson, *Postmodernism, or, the Cultural Logic of Late Capitalism* (Durham, NC: Duke University Press, 1991); David Harvey, *The Condition of Postmodernity*, Vol. 14 (Oxford: Blackwell, 1989); Bryan S. Turner, *Theories of Modernity and Postmodernity* (London, Sage, 1990) and Stuart Sim, *The Routledge Companion to Postmodernism* (London: Routledge, 2013).

²⁰ Some of the many such books include: Anthony Giddens, *The Consequences of Modernity* (Cambridge, UK: Polity Press, 1990); Marshal Berman, *All That is Solid Melts into Air* (London: Verso, 1983); Stephen Toumlin, *Cosmopolis: the Hidden Agenda of Modernity* (Chicago: University of Chicago Press, 1992); Jürgen Habermas, *The Philosophical Discourse of Modernity* (John Wiley & Sons, 2018); Leszek Kolakowski, *Modernity on Endless Trial*, (Chicago: University of Chicago, 1997); Stuart Hall, David Held, and Anthony McGrew, *Modernity and its Futures: Understanding Modern Societies, Book IV*, (Cambridge, UK: Polity Press, 1992; Bruno Latour, *We Have Never Been Modern*, trans. Catherine Porter, (Cambridge, MA: Harvard University Press, 1991); Charles Taylor, *Sources of the Self: The Making of Modern Identity*, (Cambridge, MA: Harvard University Press, 1989); Stuart Hall and David Held,

Beck, Giddens and Lash, who have argued that the experience of recent decades is not an end to modernity so much as a radicalization of its inherent reflexivity, in which its social formations (industrial work, national sovereignty, gender roles) begin to crumble under the weight of both its unintended negative consequences and its loss of legitimacy.²¹ For Beck, this meant that in the current period ours had become a “risk society” responding to the unintended consequences of the industrial society.²²

Another important addition to the theories of modernity emerging in the eighties and nineties was the “geographical” or “topological” turn in social theory. Sociologists, geographers and critical theorists sought to redress the privileging of temporal over spatial analysis in the study of modern social processes. Drawing on Simmel and Durkheim, as well as on the seminal work of Lefebvre on the production of space, neo Marxist scholars such as Harvey, Soja and Castells have explored how social-spatial arrangements have been produced, colonized and

Modernity: An Introduction to Modern Societies, (Oxford: Blackwell, 1996); Hans Blumenberg, *The Legitimacy of the Modern Age*, (Boston: MIT Press, 1985). Bryan S. Turner, ed. *Theories of Modernity and Postmodernity*, (London: Sage Publications, 1990); Gerard Delanty, *Modernity and Postmodernity: Knowledge, Power and the Self*, (London: Sage Publications, 2000) and *Social Theory in a Changing World: Conceptions of Modernity*, (Hoboken, NJ: John Wiley and Sons, 1999) William W. Rasch, *Nicholas Luhman’s Modernity: Paradoxes of Differentiation*, (California: Stanford University Press, 2000); Norbert Elias, *The Civilizing Process*, (Oxford: Blackwell, 1994); Claude Lefort, *Democracy and Political Theory*, trans. D. Macey (Minneapolis: University of Minnesota Press, 1988); Peter Wagner, *A Sociology of Modernity: Liberty and Discipline*, (London: Routledge, 1994); and Cornelius Castoriadis, *The Imaginary Institution of Society*, (Cambridge: Polity Press, 1987).

²¹ Ulrich Beck, Anthony Giddens, and Scott Lash. *Reflexive Modernization: Politics, Tradition and Aesthetics in the Modern Social Order*, (Stanford, CA: Stanford University Press, 1994).

²² Beck, Ulrich. *Risk Society: Towards a New Modernity*, Vol. 17 (London: Sage, 1992), and *World Risk Society*, (Cambridge: Polity Press, 1999).

homogenized by capitalist and state processes.²³ There has also been an emphasis on the interacting processes of time-space, or space-time, as well as on the distinction between space and place.²⁴

Literature Crucial to my Argument

While I do address these and other theoretical approaches to modernity, my interest in the dynamic propelling modernity forward has drawn me closer to those theories that concentrate on modernity's open future, its groundlessness and its relationship to uncertainty. The notion that an orientation towards an open future is crucial to the worldview of modernity was most comprehensively explored by the conceptual historian Reinhardt Kosseleck, in his 1979 work *Futures Past: On the Semantics of Historical Time*. According to Kosseleck the shift towards this future-oriented temporality first began in the early modern period, but it was solidified with the conception of history as a single, progressive phenomenon in the mid to late eighteenth century. This experience of time involved an increasing differentiation between the past and the

²³ David Harvey, *The Condition of Postmodernity* (Oxford: Blackwell, 1989) and *Spaces of Hope*, (Berkeley: University of California Press, 2000); Henri Lefebvre, *The Production of Space* (Oxford: Blackwell, 1991) and *State, Space, World: Selected Essays*. (Minneapolis: University of Minnesota Press, 2009); Manuel Castells, "An Introduction to the Information Age," in *The Information Society Reader*, eds. Frank Webster and Raimo Blom (London and New York: Routledge, 2004), 138; E.W. Soja, *Postmodern Geographies: The Reassertion of Space in Critical Social Theory*, (London: Verso, 1989); Jody Berland, *North of Empire: Essays on the Cultural Technologies of Space* (Durham, NC: Duke University Press, 2009), and Saskia Sassen, *Territory, Authority, Rights: From Medieval to Global Assemblages* (Princeton, NJ: Princeton University Press 2008)

²⁴ Doreen Massey, *Spatial Divisions of Labour*. (Basingstoke: Macmillan, 1984) and *Space, Place, and Gender*. (Minneapolis: University of Minnesota Press, 1994); A. Merrifield, "Place and Space: A Lefebvrian Reconciliation," in *Transactions of the Institute of British Geographers* 18 (1993): 516. Also see Yi-Fu Tuan, *Space and Place: The Perspective of Experience*. (Minneapolis: University of Minnesota Press, 1977).

future, or between the “space of experience” and the “horizon of expectation”, and it was marked by both a sense of acceleration and a perception of the future as unknown. Meanwhile, the discourse of progress “opened up a future that transcended the hitherto predictable, natural space of time and experience, and thence- propelled by its own dynamic- provoked new, transnatural, long-term prognoses.”²⁵

In *Modernity and Ambivalence*, Zygmunt Bauman powerfully evokes this restless dynamic and its propulsion by the modern bifurcation of order and ambivalence, control and freedom, enclosure and unlimited aspiration. As with Nietzsche, Kosselleck, Luhmann and Habermas, he employs the spatial metaphor of the horizon to express the distinctly modern consciousness of time, history and meaning. He explains, for example, that the unattainable “foci imaginarii” of modernity- certainty, order, the end of history -serve as the horizons towards which we move and “Like all horizons, they can never be reached. Like all horizons, they make possible walking with a purpose. Like all horizons, they recede in the course of and because of

²⁵ Kosselleck uses this term ‘prognosis’ for the calculative prediction of and planning for the future, which increasingly overtake prophesy and providence in modernity. See Reinhardt, Kosselleck, *Futures Past: On the Semantics of Historical Time*, (Cambridge, MA: MIT Press, 1985). Kosselleck’s concept of modern temporalization and historical consciousness was taken up in both Luhmann and Habermas’ theories of modernity. See Niklas Luhmann, “Describing the Future” in *Observations on Modernity*, trans. William Whobrey, (Stanford, CA: Stanford University Press, 1998) and Jürgen Habermas, “Modernity's Consciousness of Time and Its Need for Self- Reassurance” in *The Philosophical Discourse of Modernity: Twelve Lectures*, (Cambridge, Mass.: MIT Press, 1990). For more on Kosselleck’s influence see Michael Pickering, "Experience as Horizon: Koselleck, Expectation and Historical Time," *Cultural Studies* 18, no. 2-3 (2004): 271; and Rodrigo Cordero, "The Temporalization of Critique and the Open Riddle of History: On Reinhart Koselleck’s Contributions to Critical Theory," *Thesis Eleven* 137, no. 1 (2016): 55. For other works on the particular time consciousness in modernity see, Nikolas Kompridis, "Time-Consciousness and Transformation: On Modernity’s Relation to the Future," in *The Transformation of Modernity: Aspects of the Past, Present and Future of an Era*, ed. Michael Hviid Jacobsen (London and New York: Routledge, 2017): 3.

walking.”²⁶ As “an obsessive march forward,” modernity can never arrive at its destination, which recedes with every step; and with every step forward the ground supporting the previous step is erased, like windblown footsteps in the desert sand. Modernity’s future orientation and its insatiability are thus part of a perpetual dynamic impelled by and impelling a consciousness of existence as indeterminate and without reference.

Agnes Heller has described the indeterminacy propelling modernity as “groundlessness,” a metaphor I refer to in my title, as it is the “ground” of my own account of modernity. For Heller, it is the paradox of freedom which drives the modern dynamic. The freedom expressed by transgressing traditional boundaries also nullifies the foundations upon which people ground and orient their lives. Standards of truth, justice and authority are therefore constantly tested, found wanting, and replaced with new, abstract constructions. Freedom is the foundation of modernity, but it is “a foundation which does not found.” Always coupled with contingency, the freedom in modernity takes the form of a constant migration, a pilgrimage in search of a home.²⁷

Although I only refer to Bauman and Heller occasionally in this work, their illuminations of the dynamic of modernity have profoundly shaped my own questions about how modernity has moved through time, how it has been experienced, what is lost in its restless movement, and whether that movement can or should come to rest. Finally, because of the clarity he brings to his

²⁶ Zygmunt Bauman, *Modernity and Ambivalence*, (Hoboken, NJ: John Wiley & Sons, 2013), 13.

²⁷ Agnes Heller, “The Three Logics of Modernity and the Double Bind of the Modern Imagination” in *Aesthetics and Modernity: Essays*, ed. John Rundell (Lanham, MD: Lexington Books, 2011), 141-142. For an extended discussion of the role of freedom in the modern dynamic and the modern social arrangement please see Agnes Heller, *A Theory of Modernity* (Hoboken, NJ: Wiley, 1999).

articulation of the complex and multiple processes constituting modernity, I have relied at times upon Giddens's sociological interpretation of modernity. For the chapters related to risk and insurance, I have found his concepts of time-space distanciation, and the development of trust in abstract systems particularly helpful.²⁸

Of course, it is not only theories of modernity that inform this project. The following chapters are primarily a study of modernity in history. And because modernity manifests itself in multiple social formations, and has done so over a period of centuries, in attempting to historicize its dynamic I have necessarily drawn on a wide range of scholarship. Rather than exhaustively listing each area of such secondary literature, I will briefly mention a few that were most important in fleshing out my work. One cluster of literature that I found myself relying upon throughout this book is the historical, cultural and philosophical study of science. This includes the work of Alfred Crosby on Renaissance and early modern innovations in quantification and visualization, to which I turn in my first chapter. However, most of the historians and philosophers of science informing the later chapters can equally be considered practitioners of 'historical epistemology'. These include Theodore Porter, on quantification, Alain Desrosieres, on statistics, Mary Poovey, on statistics and the modern fact, and Lorraine Daston and Ian Hacking on probability theory. To this grouping I would also add Michel Foucault, for I found his account of the shift from the Renaissance's 'integrative' episteme to the classical period's 'representational' episteme in *The Order of Things* particularly helpful for conceptualizing the adoption of classificatory thought in the eighteenth and nineteenth centuries.

²⁸ Anthony Giddens, *The Consequences of Modernity* (Cambridge: Polity Press, 1990).

I have also relied upon an abundance of social, cultural and intellectual histories of Britain, from the early modern period to the twentieth century. For the early modern period I drew on the work of both Paul Warde and Paul Slack on the discourse of improvement, Andrew McRae and Sarah Bendall on the role of the estate surveyor and Roger Kain, John Gregory, and J.B Harley, on the power of mapping. For the nature of the commons, the impact of enclosures, and its significance in the history of capitalism, I have drawn on classic works by E.P.Thompson, Jeanette Neeson, Karl Polanyi, and Ellen Meiksins Wood, as well as Nicolas Blomley, Jessie Goldstein and Robert Marzek and others.

My project has also been informed by a number of theoretical works on both property and law, including John Locke, William Blackstone, and Jeremy Bentham, more recent contributions to property theory by Carol Rose, Margaret Radin, and Joshua Getzler, and by Harold Berman's work on the history of the Western modern legal tradition. Finally, works on risk, insurance and governmentality by David Garland, Richard Ericson, Aaron Doyle, Simon Baker, Kevin Haggarty, Pat O' Malley, Nicolas Rose and others have provided invaluable guidance for my chapters on risk and insurance.

Interdisciplinary Methodology

The interdisciplinary nature of my research is one of the unique features of this project. I have attempted to synthesize a wide array of scholarly contributions to provide a more richly textured historical account of modernity. While social theorists such as Heller, Bauman and Giddens have conveyed modernity's dynamic, its interacting institutions and its logics, and its recurring themes of freedom, uncertainty, legitimacy, and order with unparalleled vividness, they do not historicize it. Meanwhile, those historical approaches to modernity that do combine cultural,

social and intellectual analysis tend to focus on more modest historical scales, while social historians, who have provided us with rich details in the long history of capitalism, tend not to link the enclosing and improving of property with the application of the same logics to the acquisition of and control of knowledge. This work attempts to bring together developments in the history of property and knowledge by drawing upon insights into the cultural, social, epistemological and economic manifestations of modernity, and by marrying theoretical and historical approaches to understanding modernity. Like modernity itself, this synthesis cannot be complete, but it is important and appropriate that I employ an interdisciplinary methodology in the study of such a multidimensional phenomenon.

Historical Methodology

As I have already mentioned, along with a particular perception of the future, modernity also gave rise to a particular historicist sensibility, one that might best be described as a sense of distinction or removal from the past.²⁹ In nineteenth century Europe, the drive to accumulate ‘objective’ knowledge of the past was particularly fervent, as were efforts to raise history to the same scientific status as other emerging disciplines in the social sciences. Practitioners of the scientific approach to history held that, just as in the natural sciences, history followed certain general laws, and that by adhering to these laws, they could represent the objective truth about

²⁹ Reinhardt Koselleck, situates this particular historical consciousness in at the end of the eighteenth and beginning of the nineteenth centuries, when a distinction began to be made between “historical” and “natural” time. See “Modernity and the Planes of Historicity” in *Futures Past: On the Semantics of Historical Time*, (New York: Columbia University Press, 2004) 18-25. Tang extends Koselleck’s analysis to the spatial realm, arguing that, along with the emergence of “historical time” at the end of the eighteenth century, there also emerged a new “geographic imaginary,” a modern geographic science which created the “geographical subject” Chenxi Tang, *The Geographical Imagination of Modernity: Geography, Literature and Philosophy in German Romanticism*, (Redwood City: Stanford University Press, 2008), 2-3.

events of the past.³⁰ Nietzsche not only opposed such claims, but also viewed the general “historical fever” of his period as a desperate attempt to escape the deracinated and disoriented present of modern European culture, by burrowing into the roots of past cultures.³¹ Over time, Nietzsche developed a theory of history which recognized the fluid nature of time, as well as the subjectivity and necessarily interpretivist role of the historian. For Nietzsche, there was nothing wrong with using history to construct a foundation for a culture seeking orientation in the present. The problem, for him, was the falseness of all claims that an absolute truth about the past could be accessed. Not only did he see it as impossible to capture and contain the flux of history within systematic and rational concepts but he saw it as equally impossible for humans, uniquely burdened by the past, to perceive it with any objectivity because our subjective perception of the past is also constantly becoming.³² For this reason he thought that we should

³⁰ Isaiah Berlin, “The Concept of Scientific History” in *Concepts and Categories: Philosophical Essays*, Ed. Henry Hardy (UK: Pimlico, 1999) 103-142; 128-9; and Chris Lorenz, “Scientific Historiography” in *Blackwell Companion to Philosophy of History and Historiography*, ed. Aviezer Tucker, (Oxford: Blackwell, 2008) 398-408.

³¹ Friedrich Nietzsche, “On the Advantage and Disadvantage of History For Life” in *Untimely Meditations*, (Cambridge: Cambridge University Press, 1997) 57-124.

³² Anthony K. Jensen, “Friedrich Nietzsche: Philosophy of History” in *Internet Encyclopedia of Philosophy*, <http://www.iep.utm.edu/>. Of course, Nietzsche was not the first, nor the only nineteenth century thinker to challenge the positivist or scientific approach to history. Kierkegaard, Dilthey and Weber all had sustained critiques of science. See Soren Kierkegaard and Kierkegaard, Søren. *Concluding Unscientific Postscript*. Vol. 5524, (Princeton: Princeton University Press, 2019); I.J Kidd, “Objectivity, Abstraction, and the Individual: the Influence of Søren Kierkegaard on Paul Feyerabend,” *Studies in the History of the Philosophy of Science* 42, no.1 (March, 2011): 125-32; Wilhelm Dilthey, *Introduction to the Human Sciences*. Vol. 1. (Princeton University Press, 1991); Max Weber, “Objectivity in Social Science and Social Policy,” *The Methodology of the Social Sciences*, ed. and trans. E.Shils and H. A. Finch (New York: Free Press, 1949).

approach history in the same way that we should approach the truth: as something dynamic, for which one needs to continually create a horizon of meaning to orient oneself in life.

A hundred and forty something years later, it is no act of daring on my part to take an anti-positivist approach to history, or to invoke Nietzsche as a guide to my historical methodology. Nietzsche's insights into the roles of rhetoric, metaphor and interpretation in writing history have long permeated scholarly debate among historians and philosophers, and in more recent decades have been central to methodological concerns across the social sciences. According to Jensen, the twentieth century saw two major waves of Nietzschean influence on the concepts and practices of history. The first occurred in the middle decades of that century, when continental philosophers, from Jaspers, Heidegger and Arendt, to Ricoeur, Levinas and Gadamer, grappled with the existential condition of historicity. The second appeared in the seventies, among those philosophers and "post-modern" historians who were instrumental in the "linguistic" or "interpretive" turn in the humanities and social sciences: Foucault, de Man, Derrida and Hayden White. Using an epistemological rather than anthropological focus, these thinkers saw the new project of history as one of unmasking the grand narratives of the powerful.

Each of these thinkers contributed unique ideas about how the past is or should be represented and their prescriptions range from acknowledging and embracing the linguistic human instinct for narrative and metaphor, to deconstructing, or rupturing narrative, as the story of the powerful. There was, in fact, a fair amount of overlap between these two waves of thinkers, and common to them all is the Nietzschean recognition of the constructed nature of our representations of the past- and of truth itself. I prioritize Nietzsche's approach to history here because he saw through the new certainties of the modern age – rationality, system, science- to their constructed foundations. His intuition that modernity, history, and our very selves are social

constructs is thus a particularly apt starting point for an historical study of modernity as the ongoing construction of provisional foundations. In modernity, the awareness of the impermanence of all foundations (what counts as truth, authority, or knowledge) leads to a disorienting sense of uncertainty, which continually spurs the impulse to control and contain. This involves the making of horizons as a means of bringing order to an uncertain world, and I can only be reflexive about this horizon building in my own effort to represent this.³³ That is, taking into account the ordering functions of narrative and metaphor are appropriate for doing a history of modernity.

As will be evident in the chapters to follow, modern attempts to banish uncertainty by asserting new forms of control have generated not only more uncertainty, but also more abstract frameworks for ordering the world. These universal, “objective” frameworks – systems, institutions, and philosophies of governance and knowledge- grow ever more distant from the dynamic particularity of life on the ground. Metaphor and narrative, while also being ordering frameworks, can serve to counter abstraction. Metaphor, in particular, reincarnates the phantoms of abstraction by clothing concepts in the apparel of the senses, by grounding ideas in familiar, physically relatable experiences and situations. And while narrative can be a tool of the powerful, it is also a tool that we all have for making meaning, for understanding and communicating. The abstract frameworks of modernity, by contrast, tend to name and sort rather than to communicate, and make no meaning beyond order itself. Being self-reflexive about the

³³ Discussing the disadvantages of being “unhistorical” on the one hand, and having an unremitting sense of history on the other hand, Nietzsche argues that “a living thing can become healthy, strong, and fertile only when bounded by a horizon”, meaning that, without finding a way to frame or bracket a selected portion of all historical knowledge, (or memory, in the case of individuals) humans lose all orientation for living. See, Friedrich Nietzsche, "On the Uses and Disadvantages of History for Life," *Untimely Meditations*, Trans. RJ Hollingdale, (Cambridge: Cambridge University Press, 1983): 57-123.

narrativity and the interpretive nature of historical work can therefore be seen as an act of critique against modern abstraction.

While I see the value of the poststructuralist emphasis on the discontinuities, disjunctions, and reversals of history my own project is clearly less aligned with deconstructive efforts than with interpretative and constructivist approaches. It is, in fact, a work of synthesis, drawing together from a vast range of disciplines, a wealth of historical research and theoretical insights, and to use Nietzsche's language, "binding them within the horizon" of a narrative structure. In my view, the multidimensional nature of modernity itself – a phenomenon which is at once social, cultural, economic, political, and epistemological- demands this interdisciplinarity, not only in terms of research content, but also in terms of the methods by which I represent this content. I have, in relating this story of modernity, followed elements of the methodologies of a number of different and sometimes competing schools of historiography. This is, I think, probably not so uncommon, for not only have the differences between these historiographical "schools" and "turns" been overstated – many notable historians fall into several such groupings- but most historical work involves elements of both synthesis and analysis, traces both continuities and discontinuities, and recognizes, as Ricœur put it, that "at each scale one sees things that one does not see at another scale and that each vision has its own legitimate end."³⁴

In marrying sociological and historical scholarship on complex processes of change over time, my work follows in the tradition of historical sociology. In paying attention to the long term structures and large patterns of modernity- both cultural and material-I follow the *longue*

³⁴ Paul Ricœur, *Memory, History, Forgetting*, trans. Kathleen Blamey and David Pellauer (Chicago: University of Chicago Press, 2004), 218.

durée approach to history, exemplified by Braudel and the Annales School.³⁵ In tracing the genealogy and historical contexts of concepts and discourses my work falls into the category of “history of ideas” or intellectual history. What the best practitioners of these methodologies share, aside from being of somewhat unfashionable vintage, is their wide ranging nature, their boldness in crossing over disciplinary boundaries, their engagement with the specialist research of other scholars, and their unflinching allegiance to their own curiosity.

I share Braudel’s view that “history is the sum of all possible histories, a set of multiple skills and points of view- those of yesterday, today and tomorrow. The only mistake, in my view, would be to choose one to the exclusion of the others.”³⁶ I am therefore sympathetic with aims and achievements of a great many approaches to history, too many to name here. However, there are two other major influences on my methodology which I think it important to mention here. First, while I do not subscribe to the deterministic or teleological strands of historical materialism, I do think that attending to the material specificity of history is essential to Marx’s critique of capitalism’s alienating effects. Because capitalism is such a crucial component of modernity, the historian’s role in denaturalizing it should also extend to the processes and discourses of modernity itself. Most recently, it was Ellen Meiksins Wood who best articulated the “denaturalizing” effect of historicizing capitalism, but the work of Polanyi and of “history from below” and social history, as practiced by E.P. Thompson and other British social historians

³⁵ A number of prominent historians belonged to the *Annales* tradition, including its founding members Marc Bloch, and Lucien Febvre, as well as Emmanuel Le Roy Ladurie, Ernest Labrousse, Georges Dubé and Fernand Braudel. For an account of the intellectual trajectory of this historical movement from an insider, please see André Burguière, *The Annales School: An Intellectual History* (Ithaca, Cornell University Press, 2009).

³⁶ Fernand Braudel, “History and the Social Sciences: *The Longue durée*” trans. Immanuel Wallerstein, *Review* 32, no. 2 (2009): 171-3; 182.

shared this objective. Social history, particularly E.P. Thompson's work, brought to life the everyday life of ordinary people from the past, and the specificity of their cultural and material realities powerfully challenged the Whig and other idealist histories from which they had been erased. While I have long been a student of social history, I have to admit that my project only faintly succeeds in bringing the lives of ordinary people to life. Because I pay attention to new techniques, projects and philosophies which we call modern in retrospect, the elites and experts who were their early advocates and practitioners are given far more attention than commoners. However, for each transition towards a modern way of seeing and being in the world, I do address discourses of opposition and resistance which include the voices of ordinary people.

Finally, in attending to the processes and discourses by which knowledge, truth, and legitimacy have been produced in modernity, my methodological approach bears some resemblance to Foucault's genealogical critique. At the same time, in suggesting certain continuities and large patterns in modernity's history, it may appear that, contra Foucault, I am working to reveal the "underlying tendencies that gather force" and "movements of accumulation and slow saturation"³⁷ or going "back in time to restore an unbroken continuity that operates beyond the dispersion of forgotten things"³⁸ However, I do not see the recognition of continuities and patterns as a submission to a totalizing or evolutionary notion of history. To understand modernity as a way of being in and relating to the world that gained legitimacy and influence over time, I must ask what was continuous about it over its long period of becoming. On the

³⁷ Michel Foucault, *The Archeology of Knowledge*, trans. A.M. Sheridan Smith, (London and New York: Routledge, 2002), 3.

³⁸ Michel Foucault, "Nietzsche, Genealogy, History," *Language, Counter-Memory, Practice: Selected Essays and Interviews*, ed. by D. F. Bouchard. (Ithaca: Cornell University Press, 1977). 146.

other hand, I recognize the importance of Foucault's call to pay attention to the 'disjunctions' in history, especially as a major theme of this work is that modern attempts to ground reality upon provisional certainties- private property, scientific categories, mathematical measurements- tend towards abstraction and the exclusion of the ambivalences of the particular.

The story I tell is fairly conventional in its chronology. It generally, but unevenly, progresses from the late medieval period to the present day. Each chapter focuses on a period of about one to two centuries, during which a transition to a modern way of seeing or being in the world took place. I use the metaphors of surveying and mapping, enclosing and improving, and risking and insuring to emplot the large patterns I describe: in the sixteenth and seventeenth centuries, there emerges a distanced way of seeing and representing natural and social phenomena that turns them into objects of reform; in the seventeenth and eighteenth centuries we see the use of logics of containment for the pursuit of endless expansion; from the eighteenth century to the present day we see a repetition of surveying, mapping, enclosing and improving logics extended towards the realms of the future and of society, in order to objectify and manage the risks of populations. These are crucial components of the dynamic of modernity that I propose: the use of ever more abstract yet effective means of controlling the social and natural world in a continual attempt to vanquish uncertainty. However, these components or logics were not, in reality, locked tightly into the chronological frameworks I have chosen. For instance, surveying and mapping, both as material practices related to land ownership, and as ways of ordering and representing the social and natural world, continue to operate, not only throughout the periods I associate with enclosure or risk, but also in the digital surveillance and the accumulation of big data today.

My account does show how certain developments facilitated other developments (for example, the adoption of geometric knowledge and linear perspective in early modern Europe greatly shaped new standards and practices in estate surveying in England). To an extent, such developments accumulated in layers, amounting to a kind of tradition of modernity. And yet, it is not my wish to suggest any *inevitable* or steady progression in the unfolding of modernity. For, while the continuities in the patterns of modernity are important for understanding it as a unique kind of tradition in itself, discontinuities, and the break with traditional patterns are indeed essential to modernity's character, as grounded upon groundlessness.

The Boundaries of this Project

Like capitalism or colonialism, modernity is an enormous phenomenon, stretching across vast swathes of time and place and shaping the lives of a multitude of different peoples. Only, perhaps, by presenting each of its facets in an abridged account could anyone comprehensively represent such a phenomenon. In seeking to understand the relationship in modernity between control and uncertainty I have told one sort of story. While this account highlights some features of modernity, such as increasing rationalization, or changes in the organization of property and knowledge, others are relatively absent.

Notably absent in my historical account of modernity is any robust attempt to represent the geographical breadth and cultural diversity of modernity's history. While I extend the setting of the story to an international context in the last two chapters, the great bulk of my account is set in England, from the Tudor period to the nineteenth century. In attending to this particular history, not only are the various and largely concurrent experiences of modernity in the rest of Europe underrepresented but so too are the roles of non-European peoples in the constitution of modernity. I happen to be presenting a largely internalist account of modernity at the very

moment when the calls for more global, multiple and alternate representations of modernity have become most compelling.

Over the course of the last three decades post-colonial scholars have challenged some of the more enduring conventions in theories of modernity. One of these conventions has been Eurocentricism. The unquestioning association of modernity with the west had been evident in post-war Modernization theory of development.³⁹ Against the conventional presumption that modernity is a singular, unitary phenomenon, some have proposed that we look at modernity as a multiple phenomenon. Scholars from the Global South meanwhile, have begun to focus on “alternative modernities” which explore non-European roots and formations of modernity.⁴⁰

³⁹ Modernization theory, typified in the work of American economists W.W. Rostow and Seymour Lipsett, proposed a model of development in which societies progressively move through stages from traditional to modern. See, Wolfgang Knobl, "Theories That Won't Pass Away: The Never-ending Story," ed. Gerard Delanty, Engin F. Isin, *Handbook of Historical Sociology*, (London: Sage, 2003): 96; and W.W. Rostow (1960), *The Stages of Economic Growth: A Non-Communist Manifesto*, (Cambridge: Cambridge University Press, 1960). In presupposing that Western societies represented the pinnacle of societal development, towards which “traditional”, non-Western societies must progress, modernization theory recalled some of the assumptions pervading European theories of history during the Enlightenment. See, for example, Ronald L. Meek, "Smith, Turgot, and the 'Four Stages' Theory," in *Smith, Marx, & After* (Boston, MA: Springer, 1977); and Frank Palmeri, *State of Nature, Stages of Society: Enlightenment Conjectural History and Modern Social Discourse*, (New York: Columbia University Press, 2016). Wallerstein and Gunder Frank criticized modernization theory's universalist and endogenous account of the path to modernity and highlighted instead, the global and systemic factors that historically shaped uneven development, such as global capitalism and colonization. See Immanuel Wallerstein, *The Modern World-System I: Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century*, vol. 1, (Oakland, CA: University of California Press, 2011) and Andre Gunder Frank. *Capitalism and Underdevelopment in Latin America*, vol. 93 (New York: NYU Press, 1967).

⁴⁰ See Shmuel Noah Eisenstadt, "Multiple modernities." *Daedalus* 129, no. 1 (2000): 1. On “alternative modernities,” see Gurinder K. Bhabra, *Rethinking Modernity: Postcolonialism and the Sociological Imagination*, (Basingstoke: Palgrave, 2007); Dilip Gaonkar, and Michael Hanchard, "Alternative Modernities." (2001): 245; Saurabh Dube. "Introduction: Colonialism, Modernity, Colonial Modernities." *Nepantla: Views from South* 3, no. 2 (2002): 197; Satya P. Mohanty, ed., *Colonialism, Modernity, and Literature: A View from*

Work on alternative modernities seeks to give a voice to those who have been silenced in the dominant narrative of modernity, and in this, it is part of a larger project of “de-centring” or “provincializing” Europe, in Chakrabarty’s words. Others have insisted that rather than maintaining the binary of the West and the Rest, we should be focused on the interplay of the “connected histories” of different regions and peoples of the world, and the co-constitutive nature of modernity.⁴¹

The post-colonial critique of standard accounts of modernity has raised crucial questions about how we frame representations of the past: who and what is the focal point in these representations, who and what is cropped in half on the periphery, or left out of the frame altogether? While I see such questions as particularly fruitful for questioning the parameters and content of the topic of modernity, I also recognize that my own account of modernity does not contribute to the extension or repositioning the conventional Eurocentric framework. There are points at which I suggest that there is another and related story happening outside of the frame, but mine is largely an endogenous account of modernity. This does not mean that I deny the importance of work on modernity that repositions the frame away from Europe. Nor does it mean that my own framework is altogether conventional.

India, (Palgrave: New York, 2011); and Michel-Rolph Trouillot, *Silencing the Past: Power and the Production of History*, (Boston: Beacon Press, 1995).

⁴¹ Dipesh Chakrabarti, *Provincializing Europe: Postcolonial Thought and Historical Difference-New Edition*. (New Jersey: Princeton University Press, 2009). For “connected” or “co-constituted” accounts of modernity see Partha Chatterjee, *Our Modernity*, No. 1. (Rotterdam: Sephis, 1997); Amit Chaudhuri, *Clearing a Space: Reflections on India, Literature and Culture*, Vol. 8, (New York: Peter Lang, 2008). Gurminder Bhambra, *Rethinking Modernity: Postcolonialism and the Sociological Imagination*, (New York: Springer, 2007); and Arjun Appadurai, *Modernity at Large: Cultural Dimensions of Globalization*, Vol. 1, (Minneapolis: University of Minnesota Press, 1996).

As I mentioned early in this introduction, how one chooses to situate the “when” of modernity depends upon the “what” of modernity. Its early formations and key moments will vary according to which of its features one prioritizes as essential. The same is true with the “where” of modernity. If, like myself, one sees the reorganization of property and social relations according to capitalist requirements and “universal” measurements as an essential component in the history of modernity, then it is appropriate to set the early story of modernity in Tudor England. England is also an appropriate place for looking at how the pursuit of “improvement” in scientific, agricultural and social discourses related to practices of enclosure. Finally, it is an appropriate setting for examining the rise of risk and insurance, in finance, trade and ultimately in the management of society.

Thus, my methodological choice to set much of this account in England did not stem from any insistence that England is the fixed “origin” of modernity. English history *is* paradigmatic, largely because of the precocity of its capitalist formations, such as the enclosure movement and insurance markets, and the wealth of material on the transitions to modern social formations contributed by British social historians. However, I am not presenting this history as an ideal type, or a standard case against which all others are mere deviations. Rather, as a student of British history and of the history of capitalism, with an interest in the complex of relations called modernity, it was in encountering certain British historical developments that I first became interested in modernity as a historical phenomenon. Moreover, by limiting much of the work to one particular setting, I am better able to explore particular epistemological, social and economic developments and how they interacted to create a means of managing the uncertainty of modernity.

Capitalism and Modernity

If I have chosen to explore the dynamics of modernity through historical cases largely set in England, in part because that setting is widely recognized as central to the history of capitalism, then the reader may justly wonder why I have not therefore made capitalism a more explicit component of my analysis of modernity. Some clarification of the role of capitalism in my project, and of what I see as the relationship between capitalism and modernity is necessary here. While capitalism has a nearly ubiquitous presence in this work, I do not address it in itself, but rather, as a recurring manifestation of and force within modernity- and by no means the only one. Just as important as the new economic relations of capitalism, and as constitutive of the modern way of seeing and being in the world, are the social, cultural, political and epistemic manifestations of modernity. Thus, I see capitalism as one of several interrelated developments through which modern societies re-evaluated and re-established their foundations, those being, what counts as truth, knowledge and authority.

While capitalism impacts nearly all spheres of life and has given shape to many aspects of modernity, I do not believe it is the author of modernity. Rather, I see capitalism as a core element of and manifestation of modernity. To some extent, I see their relationship as co-constitutive. By co-constitutive, I do not mean that their historical development was completely symbiotic, or that they emerged or accelerated in exactly the same places and times. I mean, rather, that ever since they intersected and overlapped over the course of the seventeenth, eighteenth and nineteenth centuries, it has been difficult to imagine one without the other. Would modernity have the same dynamic, accelerating, expanding character without capitalism's own dynamism fueling the rearrangement of the social and material world? Could capitalism have gained purchase in an environment where the desires for autonomy and endless progress had not

begun to transgress the known boundaries? The answer is...maybe, but probably not. And thus I see the two phenomena as conjoined, not fatefully, but historically, and I prefer not to impose a hierarchy upon modernity's economic, cultural, or epistemological developments. To put it another way, I do not wish to abstract any one of these components from the particularity of their historical context. Like Modernity, Capitalism is an enormously complex phenomenon, and if I tried to give any comprehensive account of its history and its essential characteristics this would push to the periphery developments that that I do not believe belong there: manifestations of modernity that while related to the economy, are not economic in themselves. Nevertheless, key developments associated with the history or capitalism do feature prominently throughout this work.

The first two chapters cover the well-trodden terrain of social and economic histories that have explored the origins and development of capitalism. The surveying, mapping, enclosing and improving of land in England, from the Tudor period to the end of the eighteenth century, cleared the ground for capitalist development. They did the work of reorganizing the relationship between land and people, dispossessing labour from the means of subsistence while establishing exclusive private ownership of property as the legitimate relationship to land, and as the means of intensifying agrarian production for the economic and demographic wealth of the nation.⁴² Meanwhile, much of what I relate in the remaining chapters can also be viewed as

⁴² For the dispossession of commoners and the commodification of land, labour and money see Polanyi, Karl (1944). *The Great Transformation: The Political and Economic Origins of Our Time*, Intro by R. M. MacIver. (Boston: Beacon Press, 1957). For her theory on the origins of capitalism in early modern changes to England's agrarian property relations, and on the role of enclosures see Ellen Meiksins Wood, *The Origin of Capitalism: A Longer View*, (London: Verso, 2002). For their ground-breaking social histories of the commoning economy and of enclosure movements from the perspective of the commoners, see E.P. Thompson, *Customs in Common: Studies in Traditional Popular Culture*, (New York: The New Press, 1991), and Jeannette Neeson, *Commoners: Common*

essential to the story of capitalism: the development of abstract financial instruments and of markets in investment and insurance in eighteenth century London, the increasing sophistication of insurantal technology for commodifying risks in large populations during the nineteenth century; the creation, in the twentieth century, of social insurance as a means of mitigating the insecurity and risks created by the capitalist economy; and the threat to such social protections posed by the re-commodification of ever more spheres of life under neoliberal reforms.

Common to all of these developments is that they can be viewed as new expressions of property: the first two chapters deal with property in land; the third and fourth with insurance as a kind of property, the fifth, on social insurance, deals with social property. In each case property can be understood as a tool for organizing how people access social goods or power, or gain entry into the polity. Property, especially the legitimation of private property, is of course, a major feature of capitalism, but I do not treat it in this book solely in economic terms. I will discuss how property relates to my overall argument further below. But there is something else common to all- or most- of the above-mentioned developments. Readers familiar with the work of Marxist social historians, Marxist humanists, or Polanyi may recognize a certain line of critique linking together the aspects of capitalism that I have chosen to feature. In my account, as in many of theirs, the inscription of the boundaries of property is shown, again and again, to have simultaneously been the exclusion, disembedding, dispossession or alienation of something pre-

Right, Enclosure, and Social Change in England, 1700–1820, (Cambridge: Cambridge University Press, 1993). For other related works, see E.P. Thompson, *The Making of the English Working Class* (London, Penguin 1991); Robert Brenner, "The Origins of Capitalist Development: a Critique of Neo-Smithian Marxism," *New Left Review*, 104 (1977): 46; Gordon Edmund Mingay, *Enclosure and the Small Farmer in the Age of the Industrial Revolution*, (London: Macmillan International Higher Education, 2016); and Gregory Clark, "Land Rental Values and the Agrarian Economy: England and Wales, 1500–1914," *European Review of Economic History* 6, no. 3 (2002): 281.

existing those boundaries. Indeed, the argument that alienation and abstraction are inherent to the capitalist mode of production and exchange, is, in my view, at the heart of Marx's critique of capitalism. It is certainly the element of Marxist thought that I find most compelling when reflecting on the relationship between capitalism and modernity. And while they may be identified by different terms, such as rationalization, "science", repression/superego, or disenchantment, alienation and abstraction are also central to the major classical critiques of modernity, including those of Weber, Nietzsche, Kierkegaard, Simmel and Freud.

It was in his 1844 *Economic and Philosophical Manuscripts*, not published until the 1930s, that Marx most directly explicated his theory of alienation.⁴³ There, he explained how the division of labour under capitalism separated people, as labourers, from themselves, from the process and products of their labour, and from each other. He called these separations 'alienation' (*Entäusserung*) or 'estrangement' (*Entfremdung*). I join the concept of abstraction to that of alienation because they seem to be part of the same process. I tend to see alienation as the social and psychological condition that results from the abstracting processes by which particularity and interconnectivities are erased.⁴⁴ But whether we view abstraction as the cause or as the

⁴³ Marx, Karl, and Friedrich Engels, *The Economic and Philosophic Manuscripts of 1844 and the Communist Manifesto*, (Amherst, NY: Prometheus Books, 2009).

⁴⁴ Ollman, sees the relation as moving in the opposite direction: "What is left of the individual after all these cleavages have occurred is a mere rump, a lowest common denominator attained by lopping off all those qualities on which is based his claim to recognition as a man. Thus denuded, the alienated person has become an 'abstraction.'" Bertell Ollman, "The Theory of Alienation" in *Alienation: Marx's Conception of Man in Capitalist Society: Part III, The Theory of Alienation*, (Cambridge: Cambridge University Press, 1971); Accessed from <https://www.nyu.edu/projects/ollman/books/a.php>. Twentieth century Marxist scholarship was riven by the topic of alienation, with "orthodox" scientific Marxists dismissing the topic as belonging to Marx's immature stage, when he had yet to overcome the enchantments of humanism or "philosophical anthropology". Even among those Marxists who did see alienation as a central element of Marx's critique, there was a further division, between those who insisted Marx was

product of alienation, they both seem to be involved in the separation of what was once whole and integrated.

As Derek Sayer and others have pointed out, it was not merely in his early writing that Marx wrote of alienation, even if that term was largely replaced by “fetishism” in his later writings.⁴⁵ Indeed, I think it is in his discussion of the fetishism of commodities that Marx best explains the relationship between abstraction and alienation in capitalism. In the opening chapter of *Capital*, Marx revealed in patient detail the fetishism inherent in the commodity, the “cell form” of the mode of production he set out to demystify. Explaining the distinction between the “use-value” and the “exchange-value” of commodities, Marx revealed how, at the heart of the production of commodities for the purpose of exchange, is a mystifying act of abstraction. Once commodities are produced for exchange they differ from one another only in terms of their quantity, for they are reduced to “a common element of identical magnitude.”⁴⁶ It is this act of abstraction that erases from view the use value of commodities: the heterogenous, sensually perceivable, useful and particular qualities of a commodity evaporate, leaving only what he calls a “phantom-like objectivity.” With no intrinsic properties of its own, the commodity as exchange value “dangles”, phantom-like, mid-air, unconditioned by the forces of either gravity or time.⁴⁷

only talking about “objective” alienation, and those who interpreted his writings to include a “subjective” that is, psychological experience of alienation. My own instinct to view alienation as a social and psychological response to abstracting processes seems to put me in the camp of existentialist and humanist Marxists, who were accused of privileging subjective alienation.

⁴⁵ Derek Sayer, *The Violence of Abstraction: The Analytical Foundations of Historical Materialism* (Oxford: Basil Blackwell, 1987): 43.

⁴⁶ Marx, *Capital*, 127-128.

⁴⁷ Ibid.

The exchange relation turns “an ordinary sensuous thing” like a table into something unnatural, metaphysical, and perverse: “the table stands on its head, and evolves out of its wooden brain grotesque ideas, far more wonderful than if it were to begin dancing of its own free will.”⁴⁸ The autonomy that is projected onto the commodity is thus a form of fetishism in which things seem to be independent of human will, design or labour. In fact, in the abstracting process of the exchange relation, it is the very things that we produce that appear before us as alien forces with lives of their own. This is because the particular form of labour which produces each commodity is also extinguished in the exchange relation, its particularities reduced to simple average labour, the value of which is measured by the “socially necessary labour-time” expended to produce it. In fact, it is this reduction of all labour into congealed units of abstract labour power that Marx saw as the “third thing” against which the value of all commodities are measured and made equivalent.⁴⁹

But the conversion of particular and concrete products and producers into interchangeable homogenous units, does not happen in a vacuum. Rather, it occurs in the same new world he described in the communist manifesto, where all “fixed, fast-frozen relations ... are swept away”. As Ollman puts it:

It is because we do not grasp the ways in which the social whole is present in any factor that [each] factor seems to be independent of the social whole, that it becomes an 'abstraction'. As an abstraction, what is unique about it is lost sight of behind its superficial similarities with other abstractions. And it is on the basis of these similarities, generalized as classes of one sort or another that alienated men set out to understand their world.⁵⁰

⁴⁸ Ibid.

⁴⁹ Ibid.

⁵⁰ Ollman, “The Theory of Alienation”

Marx's commodity fetishism thus occurs in a historically specific terrain, a social world in which abstract relations obscure concrete relations. For Marx, capitalism is what Derek Sayer calls "a distinctively modern form of sociation", an arrangement in which seemingly autonomous and atomized individuals are embedded in spontaneously arising complex of social relations beyond their control or understanding.⁵¹ It is in pointing to the alienation attending this form of sociation that Marx's critique of capitalism most overlaps with the major critiques of modernity. Indeed, a number of recurring themes related to alienation and abstraction in Marx's thought would later be taken up and expanded by Max Weber. In highlighting a few of those themes here, I am also indicating where capitalism and modernity most overlap in my own project.

Comparing Marx and Weber's critiques of modernity, both Sayer and Brian S. Turner follow the example of Lowith in rejecting the earlier tendency of sociological scholars to dichotomize their positions.⁵² While the disempowering impact of the abstract division of labour was central to Marx's critique of capitalist political economy, the leitmotif in Weber's own work was rationalization. Weber argued that the legal, economic, and administrative systems by which modern societies are ordered are dominated by *Zweckrationalität*, known in English as "formal," "instrumental" or "means-ends" rationality, and characterized by the values of calculation, efficiency, and predictability. *Zweckrationalität* involves making decisions "without regard for persons: but rather, according to universal rules, laws or regulations, and with the purpose of achieving a desired end through the most efficient and calculable means. Weber considered this

⁵¹ Derek Sayer, *Capitalism and Modernity: An Excursus on Marx and Weber*, (London and New York: Routledge, 1991), 36.

⁵² Karl Lowith, *Max Weber and Karl Marx*, eds. Tom Bottomore and William Outhwaite, (London and New York: Routledge, 1993) and Bryan S. Turner, *Max Weber: From History to Modernity*, (London and New York: Routledge, 1993), 6.

form of rationality to be most concentrated in bureaucratic organizations, scientific endeavors, the capitalist mode of production and formal systems of law. As a foundation for social or economic action, this sort of rationality has led to an unceasing accumulation of knowledge, the spread of impersonal forms of power and rule and an unprecedented ability to exert control over the natural and social worlds. However, Weber saw very clearly the cost to individuals and societies of such advancements: in the pursuit of world mastery, meaning recedes; the adherence to impersonal, abstract rules in the organization of social life severs personal ties between people and, in casting out the arbitrariness of the concrete and particular, formal rationality drains all vestiges of magic from social reality.⁵³

It is not only with regard to the depersonalizing and disenchanting effects of rationality that Weber's critique of modernity overlaps with Marx's concept of alienation. The emphasis on impersonal standards, generalizable rules, and calculative decision making in formal rationality aligns with the abstracting function of commodity exchange described by Marx, and discussed above. Indeed, as Sayer notes, it is the "unprecedented extent to which actions of economic agents are calculated" in modern capitalism that makes "it is the apotheosis of that form of social action which Weber calls *Zweckrationalität*."⁵⁴ But whether in commodity exchange or in bureaucratic organization, before any calculation can be made, equivalencies must be found: all that cannot be converted into a calculable, universal measure, is excluded from consideration. It

⁵³ Stephen Kalberg, "Max Weber's Types of Rationality: Cornerstones for the Analysis of Rationalization Processes in History," *The American Journal of Sociology* 85, no. 5 (March, 1980): 1160; Sayer, *Capitalism and Modernity*, 73; Rogers Brubaker, *The Limits of Rationality: an Essay on the Social and Moral Thoughts of Max Weber*, (London: George Allen & Unwin, 1984) 2.

⁵⁴ Sayer, *Capitalism and Modernity*, 61.

is in attempting to convert the social world to such universal measures that the formal rational framework organizing modern societies (including capitalism) produces alienation, severing direct relations between people and disembedding them from organic systems of meaning.

Two other related features of both Marx's critique of capitalism and Weber's critique of modernity are the irrationality and insatiability of their subjects. The irrationality that Marx and Weber identify in capitalism and formal rationality, respectively, relates to the inversion of the natural relations between people and their products. Marx explains, for example, that when commodities are produced for use, the money made from their sale is then used to purchase other useful commodities. But in capitalism this relation, C-M-C, is reversed, so that money, which was originally a mere instrument for the circulation of use values, becomes the never finished object of the exchange of commodities: M-C-M.⁵⁵ In *The Protestant Ethic and the Spirit of Capitalism*, Weber remarked upon the peculiarity of this relation, and the ethic of increasing capital:

It is thought of so purely as an end in itself, that ...it appears entirely transcendental and entirely irrational. Man is dominated by the making of money...[e]conomic acquisition is no longer subordinated to man as the means for the satisfaction of his material needs. This reversal of what we should call the natural relationship, so irrational from a naive point of view, is evidently as definitely a leading principle of capitalism, as it is foreign to all peoples not under capitalistic influence.⁵⁶

Both Marx and Weber saw this reversal as a loss of freedom, a subjugation of the human will to something that was once our instrument but which now seems to stand outside of us and compel our actions. Where Marx expressed this as the "domination of things over men", Weber saw it as the domination of means over ends. By this he meant that, through formal rationality

⁵⁵ Marx, *Capital*, 140-150; Sayer, *Capitalism and Modernity*, 13-14.

⁵⁶ Quoted in Sayer, *Capitalism and Modernity*, 83.

that which was originally a means to an end becomes an end in itself. If, in the natural relation, the desired end is the satisfaction of human needs, under formal rationality, the means (calculability, impersonality, generalized rules) overshadow that end, so that the end is endlessly deferred.

It seems then, that this irrational, inverted relation between means and ends (or capital and commodity), is closely related to the peculiar dynamism characteristic of both modernity and capitalism. To say that the satisfaction of needs is endlessly postponed when the means to ends come to dominate, is to say that the means themselves become an endless project. So, for example, when the accumulation of capital becomes the end itself, capitalists must compete with one another through incessant innovation, while the conditions allowing for the accumulation of surplus value must be endlessly reproduced and augmented. Weber noted a similar insatiability not only in the colonizing reach of instrumental rationality- the endless conversion of the unknown into objects of knowledge and control- but also in people's experience of modern life. In his 1918 lecture "Science as a Vocation," Weber asked whether any substantive meaning could be attached to that vocation, and to the modern pursuit of progress more generally. In answer, he spoke of Tolstoy's own inquiry into the meaning of death, and his finding that (in Weber's words);

[f]or civilized man death has no meaning...because the individual life of civilized man, placed into an infinite 'progress,' according to its own imminent meaning should never come to an end; for there is always a further step ahead of one who stands in the march of progress...civilized man, placed in the midst of continuous enrichment of culture by ideas, knowledge, and problems, may become 'tired of life' but not 'satiated with life.' He catches only the most minute part of what the life of the spirit brings forth ever anew, and what he seizes is always something provisional, and not definitive, and therefore death for him is a meaningless occurrence.⁵⁷

⁵⁷ Weber, "Science as a Vocation," in ed. *Science and the Quest for Reality*, ed. by Alfred I Tauber, (New York, NY: Springer, 2016). Although he has often been characterized as a

For Weber, the modern march of progress stems from the erosion of any ultimate value, or desired “end’ for human activity, and the simultaneous proliferation of plural and competing values.⁵⁸ Individuals must choose which of these competing values can guide their actions, always being aware of their provisional nature. Scientific rationality may have helped to dissolve the religious foundation upon which an ultimate value once rested, but Weber saw that it could not offer any alternative ultimate value. That is, it could not answer the question “What shall we do, and, how shall we arrange our lives?”⁵⁹ In fact, in science, as in the accumulation of capital, the answer to this question is always postponed, for constant innovation is “the very meaning of scientific work, to which it is devoted in a quite specific sense.” But, Weber also noted that this same striving, this “progress [that] goes on ad infinitum” is generally characteristic of all the spheres of modern culture.⁶⁰ Both capitalism, and modernity as a whole, are thus characterized by this “systematic imperative towards constant ‘progress.’” to use Derek Sayer’s phrase.⁶¹

pessimist, Weber’s grim diagnosis of modernity was not wholly unaccompanied by a treatment. Like Nietzsche, Weber saw the individual as the site of possible re-enchantment. Individuals could make meaning of their lives through the aesthetic and erotic spheres. Please see Sung Ho Kim, "Max Weber", *The Stanford Encyclopedia of Philosophy* (Winter 2019 Edition), Edward N. Zalta (ed.), <<https://plato.stanford.edu/archives/win2019/entries/weber/>>.

⁵⁸ Chantal Thomas, “Re-Reading Weber in Law and Development: A Critical Intellectual History of ‘Good Governance’ Reform,” *Cornell Law Faculty Publications*, 118 (2008): 25-26, http://scholarship.law.cornell.edu/lrsp_papers/118; Also see Nicholas Gane, “Max Weber and Postmodern Theory: Rationality Versus Re-enchantment,” *Contemporary Sociology* 32 no.5 (September, 2003).

⁵⁹ Weber, “Science as a Vocation” 145, 148

⁶⁰ Weber, “Science as a Vocation” 138

⁶¹ Sayer, *Capitalism and Modernity*, 19

In the chapters to follow abstraction, alienation, irrationality and insatiability form a cluster of relations in which capitalism and modernity intersect. I show how in both economic and non-economic manifestations of modernity processes of abstraction facilitate both endless expansion and functional stability. At the same time, however, these processes have alienating effects, severing people from their previous relations and reversing the relations between people and their products, as well as the means and ends of their actions. With the endless accumulation of capital and knowledge and the expansion of techniques for mastering the social and natural world human fulfilment is continually deferred, and this gives modernity its peculiar striving dynamic.

To give just one example, ‘modern’ surveying practices in the Tudor and Stuart periods reorganized property in land according to mathematical, geometrical measurements. This ‘universal’ standard of knowledge helped to rationalize and give certainty to property claims, so that land could more easily be alienated and sold as a commodity. Customary knowledge of the land and of use rights were delegitimized through this process, as local social relations were now determined from the distanced perspective of mathematical knowledge, monetary value, and centralized law. The legitimation of these new standards facilitated the enclosure of lands as exclusive and private property. And against charges that these enclosures dispossessed and estranged commoners from the life-sustaining land, a powerful discourse emerged which made the ongoing reform and improvement of agriculture, the economy, science and society the very measure of civilization.

Property and Modernity

When I first began this dissertation I had imagined that property would be the lens through which I would view the modern response to uncertainty. I saw property as an enframing device for

creating provisional, instrumental foundations upon which to ground activities in the modern context of an indeterminate future. In fact, that is precisely the understanding of property articulated by a major tradition of property theory. As Joshua Getzler explains, there is one line of thinking about property, founded in the works of Grotius, Pufendorf, Locke, Kant and Hegel, which holds that the right to property is ‘natural’, or “prior to the state and the law.” Against this natural law conception of property, “there is a notion of property as social, a positive right created instrumentally by community, state, or law *to secure other goals*- the theory of Thomas Hobbes, David Hume, Adam Smith, Jeremy Bentham, Emile Durkheim, and Max Weber.”⁶²

And, while this understanding of property as something constructed and guarded by the laws of the state is central to the project of demystifying capitalism, it is its relationship to the uncertainty of the future that I think is most important for understanding the relations within modernity as a whole. Bentham, for example, explained that private property could not exist without the law to guarantee its security into the future. Unlike animals, who live only in the present, the human “disposition to look forward...the expectation of the future” allows us to “form a general plan of conduct... [e]xpectation is a chain which unites our present and our future existence.” This is why ‘man’ needs the security of the law, to “to guarantee to him, as much as possible, his possessions against future losses”:⁶³

The idea of property consists in an established expectation...But this expectation...can only be the work of the law. I can reckon upon the enjoyment of that which I regard as my own, only according to the promise of the law, which guarantees it to me. It is the law

⁶² Joshua Getzler, "Theories of Property and Economic Development" in *Journal of Interdisciplinary History* 26, no. 4 (1996), 64.

⁶³ Jeremy Bentham, “Of Security” in *Principles of the Civil Code: Part 1, Objects of the Civil Law*, ed. Sir John Bellamy, (Edinburgh: Tait, 1843).

alone which allows me to forget my natural weakness: it is from the law alone that I can enclose a field and give myself to its cultivation, in the distant hope of the harvest.⁶⁴

Thus, it seems to me that property serves not only as a physical shelter, but as a metaphysical shelter from the uncertainty associated with a particular future-oriented consciousness. Property, backed by the law, provides a guarantee of the future in modern conditions where traditional guarantees of security in the future, such as Prophecy and Divine Providence have been eroded. Moreover, this sheltering role of property is an apt metaphor for understanding modern developments beyond the economic. The role of property in the development of the capitalism confirms its appropriateness as a defining element of modern societies. But it is equally and concurrently a legal category and just as important, it is intellectual and cultural. Property signifies not only a way of organizing socio-economic power but also particular ways of organizing thought and perceiving the world.

I make this link between property and rational epistemology because they share a common set of gestures of control. This wider conception of property houses distinctively modern forms of knowledge and power, the deployment and distribution of which manage the uncertainty of an open future. Over the last several centuries in the west, property has been increasingly conceived of and organized as a series of discrete, bounded, (and alienable) locations of power and knowledge, an organizational pattern simultaneously produced in legal, philosophical, scientific and artistic thought. Thus, I have, in a sense, extended the metaphor of property, by looking at the logics by which property has been rearranged in modernity

⁶⁴ Bentham, "Of Property," *Principles of the Civil Code: Part 1, Objects of the Civil Law*, ed. Sir John Bellamy (Edinburgh: Tait, 1843).

(surveying, mapping, enclosing, improving, risking, insuring) as they have been applied to the control and acquisition of modern knowledge.

Yet, while property evokes the key features of modernity, such as the need for certainty, capitalism, future orientation, abstraction, rationality and alienation, in the process of writing I began to think that the strength of the economic associations of property might overpower its metaphorical meaning as a shelter from uncertainty in modernity. After all, what I what I really wanted to highlight is what Heller suggested, the ongoing refashioning of (necessarily provisional) foundations in modernity. Furthermore, foregrounding property as the central metaphor tended to cast epistemic and other developments as part of the economic story, whereas I wanted to re-embed the economy in the complex context from which it came. Thus, although the reorganization of property, and property-related metaphors such as enclosing and boundaries, are still central to this project, I have declined to explicitly frame my argument in terms of property.

Chapter Summaries

In the second chapter, “The Removed Observer and the World as an Object of Reform: Surveying and Mapping in Early Modern England,” I argue that the first impulse towards modernity in European history appeared when the world began to be viewed as an *object of reform*, something that could be surveyed and reorganized from an external perspective. The first part of the chapter explores the gradual development of the perspective of the removed observer, from the late medieval theological re-conception of the secular world as malleable to the intervention of the clergy to the separation of subject from object and the idea of human self-movement in Descartes. I also recount how the fourteenth century innovations in time-keeping and the adoption of linear perspective in Renaissance art, led to the quantification and

objectification of both time and space. By the sixteenth century, local, customary and religious ways of organizing and understanding time and space were first confronted with this new, “universal” standard of mathematics. With an emerging consciousness of time as linear, irreversible, and forward moving, the future began to appear malleable to human intervention in the present. I consider whether, in addition to demographic instability of the period, this future orientation may account for a rising sense of cultural anxiety in the late medieval and early modern periods. In the second part of the chapter I focus on the emergence and reception of estate surveyors in early modern England. Using new techniques for measuring and representing the estate lands of their clients, surveyors challenged the customary knowledge and use of land. In response to opposition by commoners and religious and political leaders, proponents of the new surveying practices claimed the epistemological authority of this “impartial” science, arguing that only by mathematical measurement could the divine order beneath the soil be uncovered. Estate mapping likewise served to clarify property claims and to legitimize the exclusive ownership of land. Meanwhile, like the military map, estate maps allowed owners to view their land from the distant seat of power and to strategize their interventions upon it, preparing the way for the enclosure and improvement of land.

In the third chapter, “Boundary Breaking and Boundary Making: Enclosure and Improvement of Land and Knowledge in Seventeenth and Eighteenth Century England,” my focus alternates between land and knowledge as objects of reform. While the practice of enclosure and the related discourse of improvement were crucial in facilitating the commodification of land and labour in the development of capitalism, I also look at their function as metaphors for the interacting logics of containing and expanding, or control and freedom in modernity. First, I show how the practice of enclosing land evolved from a response

to labour shortage in the fourteenth and fifteenth centuries to a practical estate management technique in the sixteenth century and finally, to a physical expression of exclusive legal claims to property from the seventeenth century onwards. Meanwhile, a discourse of agricultural improvement had evolved from a concern for practical management in the sixteenth century into a moral and national duty to cultivate and increase by the seventeenth and eighteenth centuries. Commoners and many religious and political leaders were fiercely opposed to enclosures, for they extinguished the use rights of commoners, cutting them off from any means of subsisting on the land, and throwing them into precarious dependence upon waged labour. Thus, the discourse of improvement was largely defensive in the seventeenth century. However, in the eighteenth century, the twin projects of enclosure and improvement were powerfully endorsed by political philosophers, who affirmed private property as a natural right and a marker of the civilized stage in human history, and by the state, which intervened in enclosure disputes through hundreds of Parliamentary Acts. Meanwhile, the goals of establishing certainty and encouraging endless growth were also central to Bacon's project of reforming knowledge. By re-grounding knowledge upon empirically and experimentally verifiable facts, and progressing through stages of increasing certainty, knowledge of the natural world could be endlessly accumulated. The Baconian project for the improvement of knowledge was carried on in the work of the Hartlib Circle and in the Royal Society. I close this chapter by illustrating the inherent instability of the foundations for the endless improvement of knowledge, in the example of the crisis of overaccumulation in Linneaus' classificatory taxonomy, as categories had to be continually revised and redrawn to contain the ambivalence of natural phenomena.

The second part of the dissertation examines how risking and insuring practices applied the logics of surveying, mapping, enclosing and improving to the reform of the future and of

society from the eighteenth century to the present day. I begin chapter four with a discussion of the development of the concept of risk, as a calculation and objectification of uncertainty. I then recount the development of probability theory in the seventeenth and eighteenth centuries, in the work of Pascal, Bernoulli, Laplace and Poisson. By accumulating available data, and mapping this data in such a way that patterns could be found, these theorists were able to determine the probability of future events, enabling what Hacking has called “the taming of chance”.

Meanwhile, in London’s emerging stock market, investors and insurers employed new strategies for profiting from risk taking and for the transfer and distribution of risk. While the spreading of risk was not novel, what was new about maritime and property insurance in the early eighteenth century was the distribution of risk through the commodification of insurance contracts and the increasing distance between the parties transferring risk and the parties undertaking it. Because of the increasing complexity and abstraction of these transactions speculative and sometimes fraudulent schemes flourished, bringing riches to some and ruin to others, and revealing the thin line between financial speculation, insurance and gambling. In response to the growing popularity of mutual aid societies, widows’ funds and the pooling of risks in proto-insurance schemes, critics condemned insurance as a kind of gambling, sinful not only because it exposed clients to financial ruin through predatory or incompetent schemes but also because playing with chance and having designs upon future events suggested a lack of faith in Divine providence. In the latter decades of the eighteenth century some insurance schemes, in an effort to ground their schemes upon a surer and more scientific foundation, began to draw on the data available in mortality tables, and to better distribute risk by widening their pool of clients. In such organisations we see evidence of a shift taking place, from faith in Divine Providence to the trust

in expert knowledge and abstract systems that would become hallmarks of modern liberal societies.

The fifth chapter examines how, in the nineteenth century, Britain's population was constituted as an object of knowledge and governance. For an increasingly centralized government to see, know, and control its population, techniques for overcoming distance had to be developed, and foremost among these were a national census and the emerging science of statistics. Facts were gathered about the inhabitants of Britain (as well as those of the colonial territories) and represented quantitatively. Such data allowed the demographic terrain to be mapped out and categorized in ways that were relevant to the state's interest in security, productivity and health, ultimately facilitating the reform of certain problematic, risky, categories, such as the sick, the poor, the unemployed, criminals and the insane. I focus in particular on the British governments' efforts to eradicate the risky and ambivalent presence of the poor, through strict categorization and deterrent intervention of the New Poor Laws. Meanwhile, as had happened with the emergence of the new practices of surveying, enclosing and insuring in the previous chapters, the census and the statistical movement were subject to opposition. The criticism of statistical knowledge touched on two longstanding philosophical problems: free will vs. determinism and the nature of truth. To many critics, the large-scale patterns identified and emphasized in statistical analysis seemed suggestive of an overly deterministic view of human life. And, related to this, critics challenged the ostensible objectivity of statistical representations of reality, for, even if the human agents producing these representations were capable of objectivity, the abundance of experience that could not be captured by quantification pointed to the elusive nature of truth and knowledge themselves. While doubts about the legitimacy of statistical knowledge have never been fully quelled, by the

latter decades of the nineteenth century the application of statistical and other scientific methodologies to the investigation of social phenomena had become institutionalized in the professionalization of numerous social sciences. Another important development I explore in this chapter is the way that, once statistical information began to be published in the 1860s, people began to identify both with the aggregate characteristics of their nation, and with the categories into which they fell as individuals. While this development did not fully displace local, occupational, or regional identities, it did create a new kind of social solidarity through which a population of free individuals could be governed through their own efforts to reflect statistical norms. This particular social arrangement, “liberal governmentality”, was also characteristic of the way that emerging insurance companies managed the risks of their clientele.

The sixth chapter explores the interrelated roles of risk and insurance in containing and generating uncertainty from late-nineteenth century Britain to the globalized society of the present day. I begin with an account of how modern liberal governments in the late nineteenth century began to recognize the risk to the social order presented by the existence of an entire class of propertyless people excluded from the security of the polis. In the case of Britain, the government began to respond to this risk by gradually taking on the role of *guarantor* of security through the development of increasingly comprehensive systems of socialized insurance and welfare. In the first half of the century a host of organizations and institutions arose to manage those risks to which modern subjects of liberal capitalist societies were peculiarly exposed, such as unemployment, work-related injuries, and financial insecurity in old age. Over these decades of debate, institutional trial and error, and the massive disruptions of two world wars, informal schemes such as friendly societies were legislated away, leaving the security of populations in the hands of the insurance industry and the state, as partners in the risk management of society.

After the Second World War, most nations of the world developed comprehensive social welfare systems, including social insurance, social services and safety-net systems for the poorest segments of society. “Welfare states” also promoted full employment and strong regulatory regimes and were committed to Keynesian macroeconomic policies and international free trade. This “post-war consensus” thus aimed to integrate the objectives of economic growth and social welfare. However, by the early nineteen seventies, cracks in this arrangement began to appear, in the form of “stagflation” and recession. Over the next few decades, government policy in most countries shifted back towards a “liberal” model of capitalism and governance. Under neoliberalism, welfare systems have been scaled back, and the role of risk management has increasingly been outsourced to the private sector. Already occupying an outsized, if barely acknowledged, role in shaping modern society, the insurance industry has now become the key institution for governing beyond the state. It uses sophisticated techniques to categorize and distribute risks, and surveil and regulate the behaviour of its clients, while defining and commodifying risks in ways that deepen insecurity across the broader population. Increasingly, the role of managing the risks of modern life has fallen upon individuals, even as they find their lives entangled within a host of compulsory and extraordinarily complex abstract systems which they do not understand, but upon which they depend for security and legitimate membership in society.

In the seventh and final chapter of this dissertation I consider whether the modern response to the uncertainty of an open future – the repetition of strategies for controlling and transforming the world- has become a compulsion. First, I reflect on how the uncontrollable character of modernity has been expressed variously, through the metaphors of the monster (Marx), the iron cage (Weber), and the juggernaut (Giddens). I then propose that the

psychological conditions of addiction and obsessive-compulsion may serve as fruitful models for understanding the nature of our relationship to freedom and control in modernity. To explore this idea I review some of the socio-cultural literature which examines addiction and compulsion within the context of the dislocations and indeterminacy generated by modernity. Next, I illustrate the addictive and compulsive character of modernity today, by reviewing our recent responses to the global financial crisis and the threat of climate change. Then, because compulsion is a matter of both unthinking habit and the fear of freedom, I argue that there are ways that we can exercise our courage to be free of the compulsive character of modernity. Thus, after drawing on key themes in the aesthetic critique of modernity, from Schiller to the Situationists, I consider the liberatory potential of a few current practices for seeing and being in the world differently.

Exposure to uncertainty is not unique to the lives of modern people. Tomorrow has likely always cast a kind of shadow on today, since events to come are obscured from human knowledge. The threats of tomorrow, whether environmental, human or animal, were once disarmed by prophecy. The prophet- a holy authority- wove a story that joined the roots of the community to the uncertain terrain of tomorrow. Under this story people could shelter: terror of the unknown could be tamed with guidance and custom.

In modernity, shelter from uncertainty is problematic and necessarily unstable. Whether through slow erosion or violent overthrow, the rending of divinity from authority, and of past from future was the unravelling of the woven story of the prophet. But a future unforecasted could also mean a future shaped by human hands. Paradoxically, the greater the awareness of the future as open, its shape dependent on the decisions of the present, the more exposed we have become to uncertainty in the form of contingency.

The loss of permanent shelters provided by divine authority and community custom has meant the loss of any assured means of navigating uncertain terrain or sheltering from unforeseen weather. What guides us, shelters us and roots us now? In modernity the instincts and functions of prophesy have survived: we continue to frame the unknown, in such a way that it seems to submit to our management. The open future both invites and demands planning and the exercise of choice. From the necessity of choosing the shape of the future comes the impulse to impose order on all unassigned, unknown realms. But this kind of order, which seeks not to foreclose choice, is necessarily detached from any permanent ground.

Chapter Two

Surveying and Mapping in Early Modern England

In the mid sixteenth century a strange new figure appeared on the English landscape. He could be seen, treading the same bounds that each year the tenants themselves would walk in order to remember the custom of the land from time out of mind. He could be seen standing, sweeping his gaze across the rise and fall of the fields, and turning now and then, to stare with concentration into the curious instrument in his hands. This figure, the estate surveyor, was not a trespasser. He would have been in the employ of the landlord, charged with measuring the shape, extent and contents of his land with an uncommon degree of precision. But to the tenants who worked and lived upon this land, his presence would have felt like a violation. He was, after all, a stranger. And how could any just account of the land and its people come from such a solitary figure, who consulted his instruments as though authority somehow lay within them?

By the close of the sixteenth century most tenants would have had good cause to view the figure of the estate surveyor with dread. They would have heard from others that landlords were now having their land measured to the very inch; that rents would rise even as their rights by custom were curtailed. The surveyor signaled a profound change to come in the relationship between people and land. In his wake, the boundaries of land ownership would be sharpened and enclosed. Land, which had been the very ground of an entire social order, now came to be viewed as a measurable, alienable unit of property.

I introduce the figure of the estate surveyor, not to point - as others have already done - to his role in facilitating the enclosure, improvement and commodification of land so essential to the development of capitalism. Rather, I want to suggest that the arrival of this figure on the scene of

the early modern English estate also embodied the arrival of a new consensus across Europe about what counted as knowledge and authority, and how truth and justice could be determined. I wish to stress the historical connection between the reorganization of property and the reorganization of knowledge in the European transition to modernity.

Surveying, and all that it entails- the quantitative measurement of land and its visual representation in maps- was not only a crucial step in the transition to capitalism, but it also serves as an apt metaphor for a new way of seeing and relating to the world which can be called modern. I argue below that the transition to this new way of seeing and being in the world, taking place roughly between the thirteenth and seventeenth century in Europe, involved the adoption of the posture of the removed observer, whose impulse is to stand back from the world in order to map it. Such an impulse is part of a larger impulse to control which is a central feature of modernity. Below I will consider where this impulse came from, how it gained purchase in the culture and what its effects were.

The urge to survey and map indicates a strong desire for orientation. I argue that chief among the many reasons for the profound sense of disorientation which pervaded late medieval and early modern Europe was a shift in the consciousness of time, and particularly, a developing sense of the future as open and contingent upon present actions. I suggest in the following that the posture and perspective of the removed observer was a response to this sense of exposure to a less determined future- a future no longer guided as before, by a divine authority. The spatial and phenomenological distance between the observing subject and the observed object allowed for the objectification of - and thus some degree of control over- a world which had begun to seem increasingly insecure.

I begin with a brief discussion of late medieval developments in law, theology, philosophy and science which may have contributed to a greater sense of the world as an object of reform and of the future as conditional upon human action. For it is here that we find the roots of the modern tendency to divide experience into subject and object. In scientific and philosophical thought, this distancing of the subject and object leads to a greater confidence that humans could direct their own movements and fashion the world according to their wills. This realization leads to the further erosion of any sense of a fixed order, and thus to a profound sense of anxiety which pervaded late medieval and early modern European culture.

Next, I look at the rise of two powerful techniques that were used for reestablishing a sense of order in the world. One of these was the rise of a quantitative apprehension of reality with the European adoption, in the thirteenth and fourteenth centuries, of mathematical and geometrical knowledge from both classical Greco-Roman and contemporary Islamic thought. The second technique was the application of mathematical and geometrical thought to the visual representation of reality, particularly in Italian Renaissance painting. Both quantification and vision were originally seen as means to the end of penetrating through the chaos of the world into the sacred order lying within it. However, by the seventeenth and eighteenth centuries both had become ends in themselves. That is, both visual and quantitative representations of reality were, by then, invested with such authority that they became the very order that they were meant to represent. This new order of the world rests upon a new foundation: one constructed with abstract standards.

In the second part of the chapter I try to bring to life the experience on the ground of this new way of representing the world, through the story of the estate surveyor in early modern England. First, I explain how the role of the surveyor began to shift in the Tudor period from one of stewardship and the preservation of an intricate social order, to the mathematical measurement

and economic valuation of landlords' estates. I then underline how novel this quantitative measurement of the land was in the context of an existing customary knowledge of the land that was local, particular and embedded in the collective memory through the ritual practice of perambulation. Given this context, advocates of the new surveying methods sought to persuade a suspicious public of the justice and universal truth of knowledge that was founded upon mathematics, practiced by experts and the rightful expectation of the owners of land. Against widespread moral opposition to the new surveying practices, advocates such as John Norden wrote surveying manuals which sought to legitimize the profession, often by questioning the motives of tenants resistant to the practice and by delegitimizing the customary standards by which they knew the land.

It is only in the final section of this chapter that I discuss the role of mapping in estate surveying for, while the theoretical knowledge of estate mapping existed in the sixteenth century, the application of this knowledge lagged behind the written survey, and was not widely commissioned by landowners, even in the seventeenth century. The ascendance of the "scientific" map was, however, a crucial component of the emergence of modernity. As a new way of seeing and representing the world, the scientific map rendered reality objective, and thus, something that could be captured, controlled, and reordered from a distant seat of power. Early modern states were the first agents to employ the emerging science of cartography in planning and actuating their power over both national and colonial territories. Before turning to estate mapping, then, I first draw on Harley, Klein and others, to explain how the maps commissioned by the Crown in the Elizabethan period were a key technology for binding power and knowledge together in the English state. Estate maps would serve a similar purpose for the seventeenth century landowners, who came to recognize that the benefits of the map would far outweigh the extravagant cost of its

commission. The geometrical exactitude informing the creation of such a map meant that boundaries would be clarified and permanently stamped with expert authority, while the visual representation was such that one could view all of one's land in one glance, easing plans for improvement and displaying one's power and status in society. The estate map thus added a powerful visual component to the already abstract representation of land by the surveyor.

The World as Object and the Future as Open

As I have discussed in the introduction, a key feature of modernity is the perception of the future as contingent upon human action. However much this perception may appear to us now as “normal” or “natural” it was the result of a dramatic- albeit gradual- transformation in time consciousness which began in late medieval Europe. Much of this transformation can be traced to institutional and theological changes in the Roman Catholic Church after the Papal Revolution of the eleventh century. As Harold Berman explains, under the leadership of Pope Gregory, the church sought to free itself from the interference of imperial authorities. The resulting separation of authority in ecclesiastical and secular institutions, led to two competing legal systems, secular and canon, and to a shift in the theological divisions of the secular and the divine. Before the Papal Revolution, theologians had conceived of the *saeculum*, the secular realm, as the abode of the world and of time. The clergy and laity alike existed in this worldly time, which was delimited by a clear beginning and ending: from the Fall to the redemption of the Last Judgment. The realm of the divine, on the other hand, was timeless, and it was here that the real life of the spirit existed.¹

¹ Harold J. Berman, *Law and Revolution. Volume One: The Formation of the Western Legal Tradition* (Cambridge, MA: Harvard U.P, 1983) 109-113. Also see Ian Robinson, *The Papal Reform of the Eleventh Century: the Lives of Pope Leo IX and Pope Gregory VII* (Manchester: Manchester UP, 2004).

After the revolution, the secular world stood apart from the Church. The clergy were now perceived to belong to the realm of the divine, which meant that the divine could be accessed in the world itself. Thus, the spirituality of the laity could be developed by the church, and the secular world itself began to appear as something that could be reformed. It is not as though the Church suddenly did away with the more static conception of worldly time as bound at both ends by the Fall and the Last Judgment. Rather, the conception of the world as an object of development and reform stretched worldly time to include an element of human control over its unfolding. The canon law became the instrument of that reform of the world, but so too did the legal order which developed to oversee the secular realm. In time these two autonomous legal institutions were themselves objects of reform, continually improving their efficacy in shaping society, by standardizing and rationalizing their content, and superimposing it upon heterogeneous local legal traditions.²

In the same period, between the eleventh and fifteenth centuries, theological thought itself underwent a process of objectification. Thinkers such as St. Anselm, Peter Abelard and Peter Lombard began to employ reason in demonstrating their faith. In fact, theology came to mean "rational and objective analysis and synthesis of articles of faith and of the evidence of their validity."³ This idea of objectivity meant that these thinkers began to see concepts themselves as

² Berman, *Law and Revolution*, 113. Other works discussing the separation between secular and canon law during the Gregorian Revolution include Kathleen G. Cushing, *Papacy and Law in the Gregorian Revolution: The Canonistic work of Anselm of Lucca* (Oxford: Clarendon Press, 2000); and Kriston R. Rennie, *Medieval Canon Law*, (Leeds, UK: Arc Humanities Press, 2018).

³ Berman, *Law and Revolution*, 174-5. Also see Michael A. Gillespie, *The Theological Origins of Modernity* (Chicago: University of Chicago Press, 1999) 5-9; Jorge J. E. Gracia, "Introduction," *A Companion to Philosophy in the Middle Ages*, edited by Jorge J. E. Gracia and Timothy N. Noone (Malden, MA: Blackwell Publishing, 2002) 4; and Alain Desrosières, *The*

objects separate from their thinking selves, making it easier to alter and improve them. Thus, by the thirteenth and fourteenth centuries the two key institutions of the late medieval world had begun to exhibit the modern tendency toward objectification. Not only had the law and the Christian church begun to be viewed and evaluated by their members from an external vantage point, with the aim of improvement, but in the process the future, the world, and thought itself were increasingly viewed from this distanced perspective.

Objectification requires a separation and a distance between the observing subject and the observed object. By the early modern period, around the time that our estate surveyor arrives on the scene, subject and object were further dichotomized in philosophical and scientific thought. In particular, the notions of subjectivity and human autonomy seem to have developed in tandem with a growing perception of the world as dynamic. Of course, a greater notion of human agency had already been advanced in Renaissance humanism. But Copernicus' finding that it is the earth that moves around the sun and not the other way around, played no small part in challenging the traditional Christian cosmology, which held that earth had no motion but that which originated from an external source.⁴ Copernicus's findings challenged future thinkers to discover the cause of the movement observable in the heavens, on earth and in humans themselves. It was partly by

Politics of Large Numbers: A History of Statistical Reasoning (Cambridge, MA: Harvard University Press, 2002) 69-72.

⁴ Nicholas P. Leveilee, "Copernicus, Galileo, and the Church: Science in a Religious World," *Inquiries Journal* 3, no. 05 (2011), 1-2. For broader treatments of the relations between medieval scientific theories and the doctrines and authority of the Church please see, Edward Grant, *God and Reason in the Middle Ages* (Cambridge: Cambridge University Press 2001); James Hannam, *God's Philosophers: How the Medieval World Laid the Foundations of Modern Science*, (London: Icon Books, 2009); and Robert Westman, "The Copernicans and the Churches," in *God and Nature: Historical Essays on the Encounter between Christianity and Science*, eds. David Lindberg and Ronald Numbers (California, University of California, 1986).

responding to this central question that Descartes discovered that in the “continuous flux of experience” the one constant, the one certainty, was his doubting, thinking self. Descartes conceived of that subject as *Res cogitans*- a substance that, in contrast with the object- *res extensa* - did not extend into space.⁵

According to Ferguson, what is important in Descartes division is that both subject and object “are characterized in terms of an immanent tendency to change.”⁶ Because Descartes’ subject is a “detached and omniscient observer” which can choose to change its perspective of objects at will “the human realm is a self-defining domain... not limited or subordinated to a presumed pre-existing and fixed cosmological order. Whatever order is revealed in the human world is the *result of human activity itself* that, in the event, might have been otherwise.”⁷ But

⁵ Harvie Ferguson, *Modernity and Subjectivity: Body, Soul, Spirit* (Charlottesville & London: University of Virginia Press, 2000), 12.

⁶ Ferguson, *Modernity and Subjectivity*, 6. For an interesting discussion of Cartesian dualism from the perspective of current neurological science, see Antonio R. Damasio, *Descartes’ Error: Emotion, Reason and the Human Brain*, (New York, Harcourt Brace & Company, 1999). The “dualism” of Cartesian thought is often taken for granted and cast as an abrupt, even violent, and rending of the human relationship to nature. Such readings neglect the complex context of Descartes’ thought. Neil Robertson complicates Descartes’ dualism and situates it within its early modern intellectual and theological context, arguing that, “For Descartes and the early moderns generally, up to the turn to “critique” in the 1750s and later, the “externalization” of nature as *res extensa* or mechanism does not, or does not simply, mean that nature is reducible to technological will or subjective appropriation. Seeing nature as *res extensa* brings to nature as a whole an objectivity and substantiality which is grounded in its divine foundation. What for Descartes makes nature both knowable to us and divinely secured in its objectivity is the “idea”—binding on human rationality, nature and God... The very independence and externality of Cartesian nature is found not only in its mechanization—where the parts seem to fall away from an organic whole—but equally in a more complete unity of whole and part than could be attained in pre-modern science.” See Neil Robertson, “Introduction: Descartes and the Modern” in *Descartes and the Modern*, eds. Neil Robertson, Gordon McOuat and Tom Vinci (Cambridge: Cambridge Scholars’ Publishing, 2008), 7.

⁷ Ferguson, *Modernity and Subjectivity*, 8, 13.

Descartes' theoretical conclusion that humans have the potential to shape their futures would not have changed the worldview of most Europeans at this time. Most people remained subject to a fixed order—both socially and economically. And for those influential thinkers who had the leisure to contemplate it, the thrill of human self-movement was tempered by a heightened sense of the future as contingent and therefore uncertain.

Late Medieval Anxiety

In spite of the greater awareness and assertions of human agency and potential in the world, the centuries during which Europe transitioned from the "medieval" to the "early modern" periods cannot be characterized as optimistic. Letters, essays, journals and other texts written by Europeans of the thirteenth to fifteenth centuries reveal that their authors experienced an unusual degree of uncertainty and anxiety. Much of the research into whether and how this "age of anxiety" can be distinguished from the general human experience of anxiety, and if so, why that may be, was completed in the 60s and 70s by Huizinga, Lynn White and Bouwsma.⁸

In some ways it is easy to see why these centuries were characterized by uneasiness. Massive fluctuations in population could certainly account for a sense of instability. Historians have estimated that the population of Europe doubled between the eleventh and fourteenth

⁸ Johan H. Huizinga, *The Waning of the Middle Ages: A Study of the Forms of Life, Thought, and Art in France and the Netherlands in the XIVth and XVth Centuries*, (New York: St. Martin's Press, 1969); Lynn White, Jr., "Death and the Devil," *The Darker Vision of the Renaissance: Beyond the Fields of Reason*, ed. Robert S. Kinsman (Berkeley and Los Angeles, 1974); William J. Bouwsma, "Anxiety and the Formation of Early Modern Culture," *A Usable Past: Essays in European Cultural History*, ed. William J. Bouwsma, (Berkeley: University of California Press, 1990), <https://muse.jhu.edu/>. Also see Michael Seidlmayer, *Currents of Medieval Thought*, trans. D. Barker (Oxford, Oxford UP, 1960); M. B. Becker, "Individualism in the Early Italian Renaissance: Burden and Blessing," *Studies in the Renaissance* 19 (1972); and Charles Trinkaus, *In Our Image and Likeness: Humanity and Divinity in Italian Humanist Thought* (Notre Dame, Indiana: University of Notre Dame Press, 1995).

centuries.⁹ Then, in the fourteenth century, the plague now known as “The Black Death” wiped out about one third of Europe’s population.¹⁰ When the population began to increase again in the following century, it seemed to do so particularly in urban settings, where people were strangers to each other and the pace of life seemed to accelerate, and to centre on the rising bustle of commercial activity.¹¹ Confrontation with the newly Islamicized Near East, helped to create a sense of Europe's shared culture of Christianity and the Latin language. But this cultural identity was also marked by a new sense of the smallness of Europe's place in the world.¹² Meanwhile, epidemic diseases, famine, the polarization of wealth and the resulting landlessness of a disappearing smallholder class all combined to foment unrest among peasants across the continent.¹³ Now, when popular uprisings occurred in one part of the continent, such as the peasant rebellion in 1380s in England, elites everywhere feared that they would spread to their own

⁹ In fact, Chris Wickham estimates that the population may have tripled in that time. In the case of England, he draws on the English Domesday survey of 1086, which records England’s population as 2 million, and estimates that around 1300 that population had peaked at 5 million. See Chris Wickham, *Medieval Europe* (New Haven, CT: Yale University Press, 2016), 121-3. For other, more modest estimates, see Josiah C. Russell, "Population in Europe, 500-1500," in *The Fontana Economic History of Europe, Vol. I: The Middle Ages*, ed. Carlo M. Cipolla, (Glasgow: Collins/Fontana, 1972); and Poalo Malanima, *Pre-modern European Economy: One Thousand Years (10th-nineteenth Centuries)*, (Leiden: Brill, 2009), 1-2.

¹⁰ David Levine, *At the Dawn of Modernity: Biology, Culture, and Material Life in Europe after the Year 1000* (Oakland, CA: University of California Press, 2001), 335.

¹¹ Henry Kamen, *Early Modern European Society* (London: Routledge, 1999), 23-4.

¹² Kamen, *Early Modern European Society*, 1-3.

¹³ František Graus, “From Resistance to Revolt: The Late Medieval Peasant Wars in the Context of Social Crisis,” *The Journal of Peasant Studies* 3, no.1 (1975): 5-6 and Rodney Hilton, *Bond Men Made Free: Medieval Peasant Movements and the English Peasant Rising of 1381* (London: Routledge, 1988), 16-17. Also see Patrick Lantschner, "Revolts and the Political Order of Cities in the Late Middle Ages," *Past & Present* 225, no. 1 (2014).

countries.¹⁴ And spreading too, as a result of the population fluctuations, were people themselves. According to Kamen, "the growing pressure on land use, a rise in prices stimulated in part by higher demand, a crisis in the exploitation of labour and the level of wages" resulted in the "restless movement of migratory populations" across the continent.¹⁵

A case can therefore be made for the material bases for a pervasive anxiety in this period. But, I am also persuaded by a different sort of explanation altogether, one that more closely reflects on the nature of "anxiety" itself. It is Bouwsma who reminds us that anxiety is a general state of uneasiness, or worry, which is not attached to any particular fear. It more like a haunting from the future: a vague and disturbing sense of uncertainty about what might come to be. Anxiety, therefore, is a sense of insecurity peculiar to a future orientation.¹⁶ As I have already discussed above, this awareness of the future as open and contingent had been growing since the twelfth and thirteenth centuries, when the Church began to blur the strict division between the earthly and time-bound on the one hand, and the eternal realm of the divine, on the other. Bouwsma suggests that the blurring of such boundaries- which had long provided people with a meaningful framework within which to live- was deeply disorienting.¹⁷

The writing of this period reveals a new historical consciousness, a sense that "now" the

¹⁴ Kamen, *Early Modern European Society*, 27; Also see, Samuel K. Cohn Jr. *Lust for Liberty: the Politics of Social Revolt in Medieval Europe, 1200-1425* (Cambridge: Harvard University Press, 2006) and Justine Firnhaber-Baker and Dirk Schoenaers, eds., *The Routledge History Handbook of Medieval Revolt* (London and New York: Routledge, 2017).

¹⁵ Kamen, *Early Modern European Society*, 24.

¹⁶ Bouwsma, "Anxiety and the Formation of Early Modern Culture," 161-2.

¹⁷ *Ibid*, 173.

time is out of joint, and people have wandered off the well-worn path of tradition. Nostalgia now dominates reflections on the past, when order, peace and wholeness were not yet broken. Eustache Deschamps' lament that, "*Now the world is cowardly, decayed, and weak, / All goes badly,*" expresses the sense of cultural degeneration giving rise to such nostalgia.¹⁸ This sense of being lost, or on the wrong path, came about because even those boundaries that had persisted were now being crossed. Previously, boundaries had been maintained in the minds and actions of the people who, by avoiding behaviours that trespassed the known margins, could assert some sense of agency over their fates. But with the unprecedented social and geographical mobility of this period this work of "boundary maintenance" faltered.¹⁹

The relative confusion of the time meant that it was easy for someone to find themselves, "a violator of its sacred limits [and] the reluctant inhabitant of precisely those dangerous borderlands." And once doubts about these boundaries began to creep in a person might feel "thrown, disoriented, back into the void from which it was the task of culture to rescue him." Thus Bouwsma attributes much of late medieval anxiety to the "growing inability of an inherited culture

¹⁸ Ibid, 166. On the anxiety of the age, and alternative means of coping with it, see Thomas Fudge, *Medieval Religion and its Anxieties: History and Mystery in the Other Middle Ages*, (New York: Palgrave Macmillan, 2017). According to Fudge, "later medieval Europe was an age characterized by fear, uncertainty, apocalyptic angst and visions of calamity...the arrival of the black death intensified the medieval preoccupation with the 'four last things': death, judgement, heaven and hell." This "eschatological fear convulsed parts of Europe and the late medieval period was a time of disturbance," 8.

¹⁹ Allison P. Coudert, "Space, Time and Identity: Giovanni Battista Piranesi and the Epidemic of Ennui in the Pre-Modern West," in *Travel, Time, and Space in the Middle Ages and Early Modern Time: Explorations of World Perceptions and Processes of Identity Formation* ed. Albrecht Classen, (Boston: Walter de Gruyter Inc., 2018), 648-9.

to invest experience with meaning."²⁰

How was this sense of disorientation overcome? For we do know, that by the turn of the seventeenth century, something had begun to change. There is still the sense, in Shakespeare's words, that "the time" was "out of joint" and there is extensive documentation from this period of a widespread fear of societal disorder.²¹ But the reversion to nostalgia appears to have waned by this time. Bouwsma explains that by this time "Man's true home was no longer in the past but increasingly in the future, whatever it might hold in store. And the growing belief in progress from the later sixteenth century onward attests that thoughts of the future were less and less accompanied by anxiety."²²

I share with Bouwsma and Crosby the contention that the lessening of a generalized anxiety and cultural disorientation had much to do with the construction and ascendance of a quantitative framework through which to view reality. This "quantitative revolution" provided precisely what was lacking in western European culture at the time: a way of establishing certainty, signposts by which people could know their place in the world and which were written in a universally comprehensive language.

As we will see below, much of the scientific and mathematical knowledge that spurred this revolution was gathered from other cultures, where it had been building for centuries. It seems odd therefore that this knowledge- received so late and at second and third hand- should ignite in

²⁰ Bouwsma, "Anxiety and the Formation of Early Modern Culture," 173.

²¹ A.L. Biere, *Masterless Men: the Vagrancy Problem in England: 1560-1640* (London: Methuen, 1985).

²² Bouwsma, "Anxiety and the Formation of Early Modern Culture," 182.

Europe a new, quantitative world view. One explanation, offered by both Whitrow and Crosby, suggests that the very fragility of European culture in the late medieval period may be the reason it was uniquely receptive to a quantitative revolution. Whitrow, following J.H. Plumb, suggests that Europe, with its mash-up of borrowed and conflicting cultural traditions, was more susceptible to historical uncertainty. In contrast, "the unity and 'all-embracing certainty' of China's traditional order was such that it was not necessary to question its place in history."²³

Similarly, Crosby describes Europe as "intellectually as well as socially unsolidified."²⁴ Europe in the late medieval period was not centralized, and therefore had numerous centres, to which those dissenting from dominant ideologies could take refuge. This meant that novel scientific and philosophical thought could travel and pick up momentum, without being forced to harmonize with the views of an overarching authority. The west was "unique among the great civilizations in its lack of phylogenic classical tradition. The classical synthesis of the others were deeply rooted in their pasts" so such civilizations "did not feel obligated to rethink their basic concepts of reality."²⁵ The two great cultural influences in medieval Europe, Greek and Hebrew thought, were "disharmonious". The former was rationalistic and the latter mystical. Thus "The West, unlike its rivals, had a chronic need for explainers, adjusters and re-synthesizers."²⁶ The early modern turn towards quantitative explanations of the world therefore provided Europeans

²³ J.H. Plumb, in G. J. Whitrow, *Time in History: The Evolution of Our General Awareness of Time and Temporal Perspective* (New York: Oxford University Press, 1988), 91.

²⁴ Alfred W. Crosby, *The Measure of Reality: Quantification in Western Europe: 1250-1600*, (Cambridge: Cambridge University Press, 1997), 54-55.

²⁵ *Ibid*, 55.

²⁶ *Ibid*, 56.

with the orientation that had been so lacking in the late medieval period.

The Abstract Representation of the World: Vision and Quantification

There were two tendencies in late medieval and early modern thought that facilitated ever greater abstraction in apprehending the world: one was the prioritizing of visuality over the other senses; the other was the ascendance of quantification as the universal language of reality. Both of these ways of representing the world, or "reality", tended towards abstraction, and both were used as evidence of the legitimacy either of an authority, whether divine or secular- or of a claim to truth and knowledge.

By the time of the arrival of the estate surveyor in early modern England, the shift in European culture towards a quantitative approach to reality was well underway. Of course, as we will see when we return to the example of estate surveying, it was still perceived as foreign way of thinking in most people's day to day experience, and mathematical and geometrical knowledge were only just beginning to seem a respectable and appropriate area of study for the landowning class.²⁷ However, the initial turn towards quantification had taken place in the late medieval period with the translation into Latin of ancient Greek and Roman texts, and the transmission of knowledge from the Islamic world from the twelfth to fourteenth centuries.²⁸

²⁷ Sarah A. Bendall, *Maps, Land and Society: a History, with a Carto-bibliography of Cambridgeshire Estate Maps: 1600-1836*, (Cambridge: Cambridge University Press, 1992), 159.

²⁸ For more on these translations and the influence of Islamic thought on late medieval intellectual developments please see Charles Burnett, *Arabic into Latin in the Middle Ages: The Translators and their Intellectual and Social Context*, (Farnham, UK: Ashgate Variorum, 2009); George Saliba, *Islamic Science and the Making of the European Renaissance* (Cambridge, MA: MIT Press, 2007); David C Lindberg, *The Beginnings of Western Science: The European*

Having studied with Jewish and Muslim scholars in Spain in the twelfth century, English Scholars Robert of Chester and Adelard of Bath brought back with them Latin translations of Plato, Ptolemy, and Avicenna. Other scholars brought back translations of Aristotle in the thirteenth century.²⁹ Crosby suggests that this influx of long lost classical knowledge and of new knowledge from the Islamic world was particularly dramatic between 1275 and 1325 and compares this intellectually exciting and transformative 50 year period with the first half of the 20th century.³⁰

The Qualitative World View

Because we live in a world long since conquered by quantification, to truly understand the nature of the change it brought to early modern society we need to understand what it was like to live, as pre-moderns did, in a qualitative world. By qualitative, I mean that the heterogeneity of the things and people of the world was paramount: difference mattered. In fact, the recognition of differences ensured the stability and rightness of the medieval world view. The medieval world, according to Bouwsma, was "above all...based on the notion of absolute qualitative distinctions rooted in ultimate reality ... The system depended on the clarity of these distinctions, and it could not tolerate ambiguity."³¹ Crosby illustrates the medieval perception of "reality's essential heterogeneity" by

Scientific Tradition in Philosophical, Religious, and Institutional Context, Prehistory to AD 1450, 2nd Edition, (Chicago: University of Chicago Press, 2010), 215-217; Paul Kunitzsch, *The Arabs and the Stars: Texts and Traditions on the Fixed Stars and Their Influence in Medieval Europe* (Abington on Thames, UK: Routledge, 2017); and Mark A. Graham, *How Islam Created the Modern World* (Beltsville, Maryland: Amana Publications, 2006).

²⁹ Graham, *How Islam Created the Modern World*, 100-105; Timothy B Noone, "Scholasticism", in *A Companion to Philosophy in the Middle Ages*, eds. Jorge J. E. Gracia and Timothy N. Noone 2002 (Malden, MA Blackwell Publishing, 2002) 59; 86-7;

³⁰ Crosby, *The Measure of Reality*, 18.

explaining how people then would have compared rocks to fire: "fire rose and rocks fell not because they had different amounts of the same abstract thing, weight, but because they were different, *period*." ³²

The absence of any one abstract or universal standard by which different phenomena are arranged rationally inside a grid is difficult to conceive of from our standpoint. But perhaps we can imagine it by considering how pre-modern peoples thought about time and space. The first thing to note is that they would not have understood the use of the words "time" and "space" without their being attached to something in particular.³³ Time, for instance, could not have been thought about as if it were a thing in itself: there was the time of winter, or the time of dawn, or the time it took for bread to bake. And space was even more foreign a concept. There was place, and the distances between places, but distances were marked by the experience of the time it took to travel them. Time was often not expressed in numerical terms, but in terms that related to a known experience of duration- such as "more than the time it takes to walk beyond that hill". Measurements of distance or duration were therefore marked by reference to everyday experience.³⁴

Thus, in addition to recognizing the heterogeneity of phenomena, the qualitative apprehension of the world was also subjective, sensually perceptible and embedded in the fabric

³¹ William J. Bouwsma, "Anxiety and the Formation of Early Modern Culture," 175.

³² Crosby, *The Measure of Reality*, 24.

³³ Classen, "Travel, Time, and Space," 9.

³⁴ Ibid, 9; Also see Ken Mondschein and Denis Casey, "Time and Time-keeping: A General Overview," in *Handbook of Medieval Culture, Volume 2*, ed. Albrecht Classen, (Berlin & New York: Walter de Gruyter GmbH & Co KG, 2015), 1671.

of the local community. Examples of how such qualities informed time perception can be found in Le Roy Ladurie's work on peasants in fourteenth century Montaillou.³⁵ Ladurie explained that while the people of Montaillou and Ariège did have a calendar, it would have been held by the local priest. And what mattered in the calendar were not the numbers of the days but the feast days of particular saints important to the region. Meanwhile, if they wished to refer to a particular period of the night time, they would have done so “by means of visual, aural, or physiological references such as "after sunset", 'at nightfall', 'after the first sleep' ...'at the cock-crow..."³⁶

Even when medieval people did mark the passage of time in terms of hours, they did so according to an array of different referents. Reviewing thousands of records of crimes in late fourteenth and early fifteenth century France, Claude Gauvard analysed if and how the hour at which a crime occurred was described. She found that, of the 35% that did specify the hour, 14.5% referred to “clock-time”; 11.5% referred to ecclesiastical hours; 4% used “folkloric” expressions to indicate the hour; 27.5% referred to a meal time; and 29% referred to the placement of the sun.³⁷ Clearly, as Camarin Porter notes, medieval people were aware of “a plurality of times.”³⁸

³⁵ Ladurie's work on time perception in fourteenth century Montaillou is discussed in Don Le Pan, *The Cognitive Revolution in Western Culture*, (Basingstoke: Macmillan, 1996), 87-8.

³⁶ Le Pan, *The Cognitive Revolution*, 88.

³⁷ Gauvard's research is discussed in Mondschein and Casey, “Time and Time-keeping,” 1671.

³⁸ Camerin M. Porter, “Time Measurement and Chronology in Medieval Studies,” in *Handbook of Medieval Studies: Terms–Methods–Trends*, ed. Albrecht Classen (Berlin and New York: Walter de Gruyter GmbH & Co KG, 2010), 1351.

Medieval references to “hours”, moreover, did not necessarily mean the equal hours of the 24 hour clock as we know it. For instance, the hours in the “books of hours” kept by aristocrats were really just approximate estimates of the duration of particular activities to be carried out in the course of the day.³⁹ Meanwhile, the canonical hours observed by monks, such as *vespers*, *nones* and *terce* were not only associated primarily with liturgy, but when they were attached to numbers, the numbers themselves were not neutral, equal units, as we think of numbers today. Numbers were meaningful symbolically.⁴⁰ This is demonstrated in the evolution of the canonical hour *nones* into our understanding of “noon”. Crosby notes that, originally, *nones* was observed in the late afternoon, but since this caused practical problems, such as hunger, it was gradually shifted back to an earlier period in the afternoon. When it was decided that it should now take place in the sixth hour (that is, the sixth hour observed liturgically since waking) the decision was based on what we would call numerological mysticism- which claimed that 6, being the sum of 1+2+3, was perfect.⁴¹

The awakening of scholarly interest in mathematics and geometry in thirteenth century Europe would not develop into a truly quantitative approach to knowledge for at least three centuries. Mathematics was of interest primarily as a philosophical tool. According to Srincek numbers were considered “crucial to understanding the order of being, but as late as the thirteenth

³⁹ Le Pan, *The Cognitive Revolution*, 90.

⁴⁰ David Glimp and Michelle R. Warren, eds., *Arts of Calculation: Quantifying Thought in Early Modern Europe*, (New York: Palgrave, 2004), xvi. For a detailed examination of the numerical symbolism and its relationship with larger intellectual trends in Medieval Europe see Vincent Foster Hopper *Medieval Number Symbolism: Its Sources, Meaning and Influence on Thought and Expression*, (Mineola, NY: Dover Publications, 2000); Also see Moritz Wedell, “Numbers,” trans. by Erik Born, in *The Handbook of Medieval Culture Vol. 3*, ed. Albrecht Classen (Berlin & New York: Walter de Gruyter GmbH & Co KG, 2015) 1208.

⁴¹ Crosby, *The Measure of Reality*, 35.

century, physics had few measurements and few calculations, there were no quantified procedures and no rigorously quantified concepts available."⁴²

Much would have to change to alter a mindset that saw each thing, distance, temperature, duration and even numbers themselves, as suffused with distinct qualities. This was a world in which nothing served as the neutral measure by which all other things could be ordered. To the contemporary mind, such a world seems disorganized- even chaotic. But this is because, for most of us, the old frame of reference which held everything in place is no longer felt powerfully. It has long been eroded by centuries of doubt and the disintegration of the old social order. Without understanding the cohesive power of the old framework, the qualitative approach to reality appears to rest on flimsy, inconsistent and illogical premises. Medieval Europeans, Crosby reminds us, believed that the people of the Old Testament really did live for hundreds of years and that there was a time when people were giants. They even found credible Gregory of Tours's claim (in the sixth century) to have known people who had seen -with their own eyes - the bottom of the Red Sea, the very ruts of the chariots that the Israelites used in their flight from the Pharaoh's army.⁴³ As we understand time, and the pace of species evolution, such beliefs and claims appear absurd. However, our own perceptions of the passage of time are not always logically consistent either. Moreover, Crosby explains that to the medieval mind, "the exact year of Exodus was not

⁴² Srnicek notes that that "the thirteenth and fourteenth centuries saw a proliferation of work done on the quantifying of physics concepts, yet this mathematical schema was derived from intuition and abstract reasoning, rather than from measurement of empirical reality." See Nick Srnicek, "Abstraction and Value: The Medieval Origins of Financial Quantification," *Speculative Medievalisms: Discography*, eds. Eileen, A. Joy, Anna Klosowska, Nicola Masciandro and Michael O'Rourke, (Brooklyn, N.Y.: Punctum Books, 2013), 75.

⁴³ Crosby, *The Measure of Reality*, 28.

compellingly important. Perhaps not every very interesting. Time, beyond the individual life span was envisioned not as a straight line marked off in equal quanta but as a stage for the enactment of the greatest of all dramas, Salvation versus Damnation"⁴⁴

To medieval Christians the link between their own lives and those of the Old Testament figures was not the flow of time unfolding at a steady, uniform pace. Rather, they believed that people of the past had lived in a different time altogether. Time was, as Palti puts it, "a succession of 'nows' ...every change in world history required a divine intervention which marked a radical difference between past and present." Thus, only the present moment "had a proper ontological status." ⁴⁵ What linked all of these 'nows' was that they were each made possible by the presence of God in the world. God was the frame of reference which made sense of a heterogeneous world and his omnipotence made everything possible- even the idea that our ancestors were giants.

Thus it isn't strictly true to suggest, as I did above, that an external standard of reference by which to measure and arrange the things of the world was absent from pre-modern European culture. God, and the immutable and eternal realm he occupied, was necessarily external to the world. But this standard of reference was also organic and local. It was part of the ground upon which people lived, because it was kept alive - along with all sorts of customary knowledge- in the collective memory of communities. In that sense it was not an external standard.

It would take a very long time, until the period we call "high" modernity, for this standard of reference -the belief in a divine order upon which everything was founded- to give way entirely

⁴⁴ Ibid, 28.

⁴⁵ Jose Palti, Elias, "Time, modernity and time irreversibility," *Philosophy and Social Criticism* 23, no.5 (1997), 35.

to the new standard. As we shall see with the entrance of the estate surveyor into the world inhabited by manorial tenants, it was at the level of the community that this qualitative order was first overtaken by a grid of reference entirely external to people's experience: this was quantification.

The Abstract Standards of Quantitative Reality

Abstraction was the key to the transformation of a qualitative world view to a quantitative approach to reality. According to Srnicek a "double movement of abstraction" was required: "both the construction of a grid of reference and an abstraction from the particularities of phenomenal reality"⁴⁶ Quantification, he says,

[R]equires and inaugurates a level of abstraction away from immediate phenomenal experience. It requires, first, the projection of a homogenous reality commensurable with measurement. If qualities and substances are heterogeneous, there can be no common measure to apply them. What is necessary is a reduction of quality to quantity. Secondly, it requires an abstract scale with which to measure reality against.⁴⁷

Aside from the philosophical interest in numbers and geometry among the Schoolmen, most of the earliest evidence indicating the rise of quantitative thought in Europe tends to relate to money and commercial activity. By the close of the thirteenth century, commercial trading networks had been established that linked China to the Middle East and Europe while, within Europe, a degree of economic integration had been underway since the eleventh century. In this period, growing markets, new business techniques, urbanization and the increasing use of monetary transactions amounted to what some have called "the Commercial Revolution of the Middle Ages."⁴⁸ Monetization involved the use of currency as a standard for determining the

⁴⁶ Srnicek, "Abstraction and Value," 76.

⁴⁷ Ibid.

values of different goods being exchanged, and was thus a step towards abstraction of value.⁴⁹ The "monetization" of currency first happened in Europe in the Italian city states of Florence and Genoa, each of which minted their own currency in the eleventh and twelfth centuries.⁵⁰ By the twelfth and thirteenth centuries, large cities in France and Britain also began to mint their own currency.⁵¹ According to Joel Kaye, monetization is a "multifaceted social process" involving not only the use of coins but also,

[T]he development of new modes of consciousness and new habits of thought and perception attached to that use. Among these: the attainment of literacy and numeracy on a wide scale; the routine translation of qualitative values into the quantitative terms of a numerable price; the acquisition of habits of calculation in which options are weighed in terms of cost and the opportunities for profit; a new sensitivity to measurement and the potentialities of measurement; and a new attention to the observation and recording of detail, with profound implications for literature, the plastic arts, and learning, particularly in the intellectual area that we now designate as science.⁵²

One of the ways that monetization, and commercial activity in general, helped to inculcate new habits of quantitative thought among medieval Europeans was by bringing in their wake a host of practical problems that could only be solved through innovative approaches to mathematics and numbers. That is, in order to calculate more complex transactions, and to find a more universal means of measuring the value of heterogeneous goods, the mystical content of numbers had to be

⁴⁸ Joel Kaye, "Money and Administrative Calculation as Reflected in Scholastic Natural Philosophy," in *Arts of Calculation: Quantifying Thought in Early Modern Europe*, eds. David Glimp and Michelle R. Warren, (New York: Palgrave, 2004), 1.

⁴⁹ Srnicek, "Abstraction and Value," 77. As Crosby notes, a further step towards abstraction was taken when Europeans began to use the fiction of "money of account", or credit. See Crosby, *The Measure of Reality*, 72.

⁵⁰ Crosby, *The Measure of Reality*, 71, Srnicek, "Abstraction and Value," 78.

⁵¹ Srnicek, "Abstraction and Value," 78

⁵² Kaye, "Money and Administrative Calculation," 2-3.

sidestepped.⁵³ Before Robert of Chester translated a book on Hindu-Arabic numbers by al-Khwarizmi in the twelfth century, Europeans had depended on a counting board for their calculations. The problem with the counting board was that as you worked out a problem you erased steps in your thinking, and this inhibited more complex or abstract problem solving.⁵⁴ The need for a more sophisticated, efficient and adaptable approach to calculations explains the eager adoption of Hindu-Arabic numbers in the twelfth century and their eventual displacement of the Roman numerical system four centuries later.⁵⁵ The new numbers could be employed in what Europeans began to call "pen-reckoning," allowing one to review each step in a calculation, and to make adjustments as needed. The new numbers were an important step towards the quantitative turn in European culture, for, as Crosby points out, just as "Western Europeans turned away from one super-national, superregional language, Latin, in favor of their several vernacular tongues, they accepted and embraced another and truly universal language, algorism."⁵⁶

The Objectification of Time

It is not coincidental that the first mechanical clocks appeared in urban centres around the same time that money was beginning to be used as a standard of equivalence for the exchange of commodities. Just as money eased transactions at a time of increasing trading activity both within Europe and with regions beyond it, the standardization of time allowed merchants to

⁵³ Srnicek, "Abstraction and Value," 77-81.

⁵⁴ Crosby, *The Measure of Reality*, 111.

⁵⁵ *Ibid*, 112-113.

⁵⁶ *Ibid*, 116.

coordinate their activities.⁵⁷ According to Crosby, reference to the mechanical clock can be found in texts such as *Romance of the Rose*, as early as 1270. After 1300 such references appeared more frequently. The new kind of Clock is mentioned numerous times in Dante's *Paradiso*, for instance.⁵⁸ Appearing even earlier than these popular references were the theories of thirteenth century Scholastic philosophers Robert Kilwardby and Roger Bacon, who argued that time could be measured objectively. Bacon's position, according to Mondschein and Casey, was that "time is independent, unitary, is abstracted from and does not adhere to individual things, and flows without reference to moving things, though we can know of its passage from moving things."⁵⁹

While the first mechanical clocks appeared in Europe at the turn of the fourteenth century, clocks themselves were not new. Some version or other of clocks, including sun dials and some very complex water clocks, had been around for many centuries in China and the Middle East. For centuries, Europeans had been using sundials and graduated candles, but in the eleventh century they were introduced to the Islamic technology of the astrolabe, an "observational device for taking the time from the sun and stars so as to calibrate the water clock." From the mid thirteenth century,

⁵⁷ In the nineteen sixties, *Annales* historian Le Goff argued that commercial activity played a critical role in ushering in the objectification and standardization of time: "The communal clock was an instrument of economic, social, and political domination wielded by the merchants who ran the commune." See Jacques Le Goff, "Merchant's Time and Church's Time," *Time, Work, and Culture in the Middle Ages*, trans. by Arthur Goldhammer (Chicago: Chicago University Press, 1982).

⁵⁸ Crosby, *The Measure of Reality*, 78-79

⁵⁹ Mondschein and Casey, "Time and Time-keeping," 1659-1660.

application of the astrolabe allowed for the reckoning of equal hours.⁶⁰

What made the mechanical clock of the early fourteenth century unique was the use of the "escapement" which allowed for an even and uninterrupted expenditure of energy that was self-propelling.⁶¹ The introduction of this mechanism inaugurated a novel way of imagining time. Crosby explains that previously, "Time had seemed to most people as an unsegmented flow." For centuries people had tried to "imitate its flowing passage with the use of water, candles and sand." But the variable nature of these was a problem that was only overcome when "they began to think of it as a "succession of quanta."⁶²

By the fourteenth century it became more common to find public clocks in larger European towns.⁶³ Now, according to A.J. Gurevich, "for the first time in history" time began to be "'isolated'

⁶⁰ Ibid, 1676-7. Like much of the scientific knowledge and the technological innovations involved in the European intellectual renaissance of the late medieval period, European timekeeping was enormously influenced by Islamic thought.

⁶¹ Mondschein and Casey describe what was called the "virge-and-foliot escapement" in detail: "The "virge" part of the verge and foliot is named from the Latin *virga*, "stick" or "rod." The escapement itself, or "crown wheel," is a gear with vertical sawtooth-shaped teeth (thus the name "crown"). The virge has two tabs called "pallets" offset at such an angle that, as the crown wheel rotates thanks to the downward pull of the weights, the pallets will engage and rotate the virge, which in turn moves the weighted "foliot," a weighted bar. A tooth on the opposite side then catches the other palette, rotating it back and returning the foliot to its original position. The verge-and-foliot serves to transform the downward pull of gravity into a regular oscillating motion, producing the characteristic "tick tock" as it rotates forward and back. Moreover, if the weights on the foliot are moved inwards or outwards, the period of the cycle can be adjusted, thus regulating the clock." See Mondschein and Casey, "Time and Time-keeping," 1677.

⁶² Crosby, *The Measure of Reality*, 80

⁶³ LePan, *The Cognitive Revolution*, 96-97; Classen, *Travel, Time, and Space*, 11.

as a pure form, exterior to life."⁶⁴ But even as they introduced people to a new abstract standard of time, public clocks also served to demonstrate a town's wealth, importance and scientific advancement. Moreover, as Le Pan notes, these "mechanical marvels" inspired awe in those who looked upon them: they were "a vision of time as part of the divine order: the functional implications of the objective time that the hands displayed were at first often quite incidental."⁶⁵ Thus, it should be remembered that the introduction of "objective" time did not suddenly and dramatically change how people experienced time or imagined their relationship to nature or the divine.

But it was as a visible (and audible) reminder of time's incessant movement that the mechanical town clock had its greatest impact on the time consciousness of urban late medieval Europeans. A wholly new anxiety about time's passage can be found in letters, diaries, and other texts from the fourteenth century. Petrarch, for example, wrote that "one unalterable speed is the course of life. There is no going back or taking pause. We move forward through all tempest and whatever wind. Whether the course be easy or difficult, short or long, through all there is one constant velocity."⁶⁶ Elsewhere, writing to Emperor Charles IV, Petrarch suggests that time is "so precious, nay, so inestimable a possession that it is the one thing which the learned agree can justify avarice."⁶⁷ Passages in *Piers the Ploughman*, and in the writings of the painter Alberti, the scholar Vergerio, Rabelais' teacher Ponocrates, and even a merchant's wife, all express this sense that time

⁶⁴ Quoted in Crosby, *The Measure of Reality*, 82

⁶⁵ LePan, *The Cognitive Revolution*, 96-97.

⁶⁶ Quoted in Crosby, *The Measure of Reality*, 93.

⁶⁷ Quoted in Bouwsma, "Anxiety," 161.

was a scarce commodity which should never be wasted.⁶⁸

From the fourteenth century, then, some Europeans at least, would have more sharply experienced time as moving irreversibly towards a future (about which the only thing known for certain was that death awaited everyone). Caught up in time's thrall, there was little such people could do but pay even closer attention to how they used the time they had. By treating time as a precious resource, the expenditure of which could be closely monitored and managed, people could lessen their sense of helplessness; they could proceed as though they actually had some degree of control in the matter. Vigilance with regard to time's passage led to the proliferation of mechanical clocks in ever more public, and even private settings. But the more widespread presence of clocks only sharpened the new sense of time as thing, external to and looming over the lives of people. When we speak of the "objectification" of time, which is what was happening here, it can sound like cold calculation and nothing more. In fact, it was the cumulative outcome of an ongoing and anguished struggle to overcome the uncertainty bred by time-consciousness. Objectification seemed to harness and tame something frightening. But at the same time, it gave further power and life to something that was not actually an independent reality.

The Objectification of Space

A similar dynamic in which the cycle of objectification, anxiety and hypervigilance repeats and propels itself ever forward, can be found in the history of space in European thought. The quantification of space - the notion that it existed independently - lagged behind the quantification of time by at least two centuries.⁶⁹ Just as medieval Europeans had no notion of time as one all-

⁶⁸ Crosby, *The Measure of Reality*, 92-93 and Bouwsma, "Anxiety," 161.

encompassing phenomenon, neither did they conceive of “space in general”. Instead places, spheres or realms were particular and finite. Nor could they be divorced from the symbolic meanings that had been attached to them. Space was, according to Crosby, “spherical and qualitative in structure”. The spheres were:

[T]ightly nested, one inside the other. There was no emptiness between them....All spheres and their visible freight (bodies) moved in perfect circles because the heavens were perfect and the circle was the most perfect and noble shape. Shapes had qualities, and the circle, like the number 6, was intrinsically noble. Motion in straight lines was antithetical to the nature of the heavens...everything below the moon was changeable and ignoble, that is to say composed of the four elements.⁷⁰

Meanwhile what maps there were may have contained basic information about what lay near and far, but they were also, like the first town clocks, suffused with symbolic and religious content. According to Kupfer, medieval maps served “a range and often a blend of didactic, religious, political, social and other pragmatic functions.”⁷¹ The thirteenth century Ebstorf map of the world, for example, was as much a religious, mystical, and historical map as it was geographical. In it, Christ’s body is depicted, his arms outstretched as on the cross, with his head, feet and hands marking the eastern, western, northern and southern boundaries of the world. The heavenly city of Jerusalem is at the centre of the map, and within its walls, the figure of Christ rising from the dead. According to Pischke, the central message of this map was that “Christ keeps the world together, and is part of this world...and the world is part of Christ as his body.”⁷² This

⁶⁹ Crosby, *The Measure of Reality*, 35-6

⁷⁰ *Ibid*, 36.

⁷¹ Marcia Kupfer, "Medieval world maps: embedded images, interpretive frames." *Word & Image* 10, no. 3 (1994): 262. See also, Victoria Morse, “The Role of Maps in Later Medieval Society: Twelfth to Fourteenth Century” in *Cartography in the European Renaissance Vol. 3, Part One*, ed. David Woodward (University of Chicago Press, 2007), 30.

map, and others like it, contained text and images referencing both biblical and pagan history.⁷³ In fact, as Kupfer notes, one of the most interesting characteristics of medieval maps is “the way they integrate temporal and spatial structures,” an assimilation that corresponds to the medieval notion of *saeculum*, meaning both the physical world and its perishability under the rule of time. Viewing “space through the lens of time,” medieval maps “layered different epochs within [a] unified field” and are “often described as the visual counterparts of universal chronicles.”⁷⁴

In the late medieval period it was understood that heavenly bodies were very far away. Yet medieval estimates of their distance from the earth reveal to us how much smaller and more humanly relatable their sense of the universe’s size was compared to our own. In Crosby’s view, what seems to have changed everything, the way the escapement in the mechanical clock had changed time perception, was the arrival in Florence at the turn of the fifteenth century of Ptolemy’s *Geography* from Constantinople. While Ptolemy’s depiction of the universe reinforced the medieval conception of space as hierarchical it also included the innovation of projecting a grid onto pictures of the earth’s surface.⁷⁵ Points along the lines of the grid could be lined up “in

⁷² G. Pischke, “The Ebstorf Map: Tradition and Contents of a Medieval Picture of the World.” *History of Geo-and Space Sciences* 5, no. 2 (2014): 155-161.

⁷³ Evelyn Edson, *Mapping Time and Space: How Medieval Mapmakers Viewed their World*, (London: British Library, 1997), 139.

⁷⁴ Kupfer, “Medieval World Maps,” 262-265; Morse, “The Role of Maps in Later Medieval Society”, 30. Also see David Woodward, “Cartography in the Renaissance: Continuity and Change,” in *History of Cartography, Vol.3, Part 1*, (2007): 3.

⁷⁵ Crosby, *The Measure of Reality*, 97, 105. It should be noted that, according to Patrick Gaultier Dalche, Crosby is one of many scholars who have tended to overstate the modernizing impact of Ptolemy’s *Geography* upon early modern European cartography, with regard to the increasing rationalization of space. Dalche argues that such accounts overlook the complex context in which Ptolemy’s work was received and interpreted in the early modern period. Please see “The

accordance with the positions of the heavenly bodies." The *Geography* also provided mathematical methods for representing the curved earth on the flat surface of maps.⁷⁶ Once European astronomers learned to treat the surface of the earth as a neutral, geometrically measurable space, sophisticated calculations about the distance to the stars was possible. By the end of the sixteenth century, the calculations of Copernicus and Tycho Brahe led to the conclusion that the universe was almost inconceivably larger than had previously been estimated: 400,000 times larger in the Copernican system!⁷⁷

In fact, writing in the 1580s, Bruno described the universe in a way that resonates with our own perception of it: "there is a single general space, a single vast immensity which we may freely call Void: in it are innumerable globes like this one on which we live and grow; this space we declare to be infinite, since neither reason, convenience, sense-perception nor nature assign to it a limit."⁷⁸ Elsewhere Bruno wrote "There are no ends, boundaries, limits or walls which can defraud or deprive us of the infinite multitude of things."⁷⁹

But if the possibility of infinite space inspired a sense of freedom and abundance to some thinkers, it was more often felt to be frightening. Bouwsma has argued that the disintegration of old cultural and physical boundaries was joined for some time by a "frantic if ultimately

Reception of Ptolemy's Geography (End of the Fourteenth to Beginning of the Sixteenth Century)" in *The History of Renaissance Cartography: Interpretive Essays*, ed. David Woodward, (Chicago: Chicago University Press, 2007), 285.

⁷⁶ Crosby, *The Measure of Reality*, 98.

⁷⁷ Ibid, 103-4.

⁷⁸ Edward Grant, *Much Ado about Nothing: Theories of Space and Vacuum from the Middle Ages to the Scientific Revolution*, (Cambridge: Cambridge University Press, 1981), 189.

⁷⁹ Quoted in Bouwsma, "Anxiety," 175.

unsuccessful, effort to shore them up." This was evident in the regressive character of the later Renaissance period, when Church authorities attempted to silence innovative thinkers such as Bruno and Galileo, and when secular rulers began to more emphatically define the boundaries of their states.⁸⁰

As I have already mentioned above, late medieval and early modern Europe was a time of notable anxiety, a sense of cultural degeneration, and widespread disorientation. Following Bouwsma, I posit that the ascendance of measuring, counting and calculating activities at this time may well have served to compensate for the erosion of traditional sources of certainty. The rise of quantification had already contributed to the dissolution of the old framework, and with it, the orientation and meaning it had offered. But in their absence, a quantitative approach to reality offered an endless series of solvable problems: "The mathematician could begin at any point in the welter of the phenomenal world, by measurement in units of his own devising define its relation to other phenomena, and so, like the artist in words or in paint, describe an order in the universe (if not *the* order of the universe), in accordance with his chosen purposes."⁸¹ Mathematics offered a new boundary or standard of reference, one that was more manageable because it was made up of homogenous units of quanta and ratio.

If we pay attention to the influx of new language, as Le Pan has done with regard to time consciousness, we find clusters of new words minted at key points in the rise of quantification in European cultures. One such moment was at the turn of the seventeenth century, when the question "what time is it?" first appears in English, in 1597, and in 1600, when Shakespeare's Falstaff asks,

⁸⁰ Ibid, 175.

⁸¹ Ibid, 178.

"What is it o'clock?"⁸² These questions refer to time as an objective and measurable phenomenon existing independently of experience, and reveal the suffusion of quantification into the wider culture.

In fact, we can already see the change to European culture four decades earlier, in Breughal the Elder's 1560 painting, *Temperance*. Apparently intended to celebrate the virtue of moderation, it is really an exhibition of the period's advancement in the arts and sciences of music notation, geography, surveying, mathematics, horology, and astronomy. Figures are shown looking into the heavens with telescopes, measuring distances on a globe, singing from written music, and painting with new geometrical techniques. The figure of Temperance stands at the center of the painting with a clock appearing above her head. We are given a sense of the excitement of the age not merely over technical advancements, but also over what Crosby suggests we might term "the West's Renaissance dream...[i]t was a yearning, a demand for order. Many of the people in Brueghal's picture are engaged in one way or another in visualizing the stuff of reality as aggregates of uniform units, as quanta; leagues, miles, degrees of angle, letters, guildens, hours, minutes, musical notes."⁸³

The fact that sight is the primary sense being employed in each of these activities is not coincidental. A key argument in Crosby's book, *The Rise of Quantification*, is that the introduction of mathematical and geometrical knowledge into European culture in the late medieval and early modern periods are "necessary but insufficient conditions". What was needed for quantification to really take off was the "striking match" of visualization: "The choice of the Renaissance West was

⁸² Le Pan, *The Cognitive Revolution*, 90.

⁸³ Crosby, *The Measure of Reality*, 10.

to perceive as much of reality as possible visually and all at once, a trait then and for centuries after the most distinctive of its culture." Even music can be seen in this way, for a glance at a page of notations can tell the reader at once what its sweep over a given time will be.⁸⁴ And just as music notation replaced variation and improvisation, the general ascendancy of visuality, would, in time, have the same effect on nearly every aspect of European culture.

The View from Above

In recent decades scholars from across the social sciences have noted the privileged place of vision among the other senses in modern western culture.⁸⁵ But the "ubiquity of vision as a master sense of modern era"⁸⁶ and its association with power and authority long predate Debord's spectacle, or Foucault's (Bentham's) panopticon. In *The Eye of the Law*, Michael Stolleis recounts the long history of the eye as an iconographical staple in Egyptian, Greco-Roman and Judeo-Christian images.⁸⁷ Each of these traditions "converge in the notion of the omniscience and justice of a supreme being who unites providence and vigilance, good and caring rule, as well as the necessary and redemptive "oversight."⁸⁸ Unlike her blind-folded descendant in eighteenth and nineteenth

⁸⁴ Ibid, 11.

⁸⁵ For an introduction to various critiques of the hegemony of vision in the modern western culture please see David Michael Levin, ed., *The Discursive Construction of Sight in the History of Philosophy*, (Cambridge and London: MIT Press, 1999); W.J.T. Mitchell, "Interdisciplinarity and Visual Culture" in *Art Bulletin* 77, no.4 (1995): 540–4; and Amelia Jones, *The Feminism and Visual Culture Reader* (London: Routledge, 2003).

⁸⁶ Guy Debord, quoted In Martin Jay, "Scopic Regimes of Modernity," *Vision and Visuality*, ed. Hal Foster (Seattle: Bay Press, 1988), 3.

⁸⁷ Michael Stolleis, *The Eye of the Law: Two Essays on Legal History*, translated by Thomas Dunlap, (Abingdon: Birkbeck Law Press, 2009), 23.

⁸⁸ Ibid, 28.

century European depictions, the figure of the Roman goddess Justitia was often portrayed with wide-staring eyes, indicating a vigilance from which nothing can be hidden.⁸⁹ Christian iconography adopted this motif of vigilance, for the eye that need not close, rest, or sleep can only belong to the Deity, who alone exists outside of time and its limitations.⁹⁰ From the perspective of eternity, God's eye looks on providentially, seeing into the future of humankind.

Stolleis also notes that God's eye is always singular. For monotheistic religions, which Luhmann calls "religions with an observer-god", the image of One eye, appropriately, yet abstractly, symbolized the indivisible and absolute nature of the Deity.⁹¹ In the Hebrew Bible, the New Testament, and the Koran alike, the one God is portrayed as an all-seeing witness to his creation, watching over humankind and the course of history. Stolleis' essay describes the evolution of the providential eye of God depicted in late medieval Christian iconography into the eye of the law in the early modern period. He explains that "By moving into the centre of the early modern doctrine of the state, the law brought with it from its theological origins the aura of an order established by the highest power and the highest wisdom."⁹²

In the intermediate point of this transition from god's eye to law's eye, the aura of divine

⁸⁹ Judith Resnik and Dennis E. Curtis, "Images of Justice," *The Yale Law Journal*, 96 (1987): 1755. Resnick and Curtis explain that Justice "traces her ancestry to goddesses. Her forerunners seem to have been Ma'at in Egyptian culture, Themis and Dike in ancient Greece,' and then Justitia under Roman rule." In Christianity, images of Justitia were used to represent not a goddess but a moral virtue, along with Prudence, Temperance, and Fortitude, see 1729-1730.

⁹⁰ Stolleis, *The Eye of the Law*, 17.

⁹¹ *Ibid*, 9.

⁹² *Ibid*, 36.

order was attached to the political authority of secular rulers. One common motif in the seventeenth century, with the rise of absolute political rulers, was the ruler holding a scepter with an eye at its top, or holding a scepter depicting "an open palm bearing an eye."⁹³ As Resnick and Curtis have argued, sovereign rulers of the early modern period often had themselves depicted along with such images of justice, in order to associate their rule with virtuous or divine guidance.⁹⁴ The eye suggests the legitimacy of the sovereign's rule according to Divine providence, but it also "stands for all-encompassing solicitude and control, and the sceptre for authoritative power."⁹⁵

Like power itself, the power manifested in vision is not wholly benevolent. As Costas Douzinas reminds us in his foreword to Stolleis' work, "vision has an aggressive side...the eye identifies and separates, its discernment is a way of abandonment, and exclusion."⁹⁶ Thus, what is not seen is not seen to exist. What is not represented cannot be recognized. The actions of the eye are acts of legitimation, of claims to the real or the truth. These are the acts, not of vision, but of visuality, what Mirzoeff defines as "a discursive practice for rendering and regulating the real that has material effects."⁹⁷ Mirzoeff suggests that, while vision itself is perceptual, visualization is imaginary, and because "what is being visualized is too substantial for any one person to see and is created from information, images and ideas... this ability to assemble a visualization manifests

⁹³ Ibid, 20.

⁹⁴ Resnik and Curtis, "Images of Justice," 1734.

⁹⁵ Stolleis, *The Eye of the Law*, 20. Stolleis adds that "such a scepter was carried especially by rulers famous for their justice." who sought to be remembered as lawmakers, 23.

⁹⁶ Costas Douzinas, "Foreword" in Stolleis, *The Eye of the Law*, xiv.

⁹⁷ Nicholas Mirzoeff, "The Right to Look" in *Critical Inquiry* 37, no.3 (2011), 476.

the authority of the visualizer."⁹⁸ But this is a modern form of authority that Mirzoeff is speaking of. To be sure, visibility is a new tool of human power, but its authority is no longer grounded in the sacred and, being groundless, it is subject to doubt, and must fashion consent for itself. Visibility is therefore the means by which modern authority authorizes itself. The reality that it renders is legitimized through the acts of "categorizing, separating and aestheticizing." First, it "classifies by naming, categorizing, and defining- a process Foucault defined as 'the nomination of the visible.' Next it "separates the groups so classified as a means of social organization and finally, it makes this separated classification seem right and hence aesthetic...".⁹⁹

Mirzoeff argues that prior to and "claiming autonomy from" the authority of visibility is "the right to look." This right to look "refuses to be segregated" by the eye of authority and asserts the priority of right over law.¹⁰⁰ We can see a similar arc from the right to look to the authority of visibility in the evolution of eye images charted by Stolleis. In earlier images (Greco-Roman, Egyptian, and Medieval Christian) the eye is associated with justice, which Stolleis calls "metaphysically grounded," that is, it represents an extra worldly standard. By the modern period, however, the eye is more and more often intended to represent a "formal legal order" which is not grounded on anything but itself.¹⁰¹ Thus, the ascendance of visibility is also the ascendance of law over right.

Stolleis also detects in the evolution of eye images a change in the nature of political and

⁹⁸ Mirzoeff, "The Right to Look," 474.

⁹⁹ Ibid, 476.

¹⁰⁰ Ibid, 476.

¹⁰¹ Stolleis, *The Eye of the Law*, 33-4.

legal authority. This is the gradual depersonalization of worldly rule, its "progressive objectification...as reflected in the famous maxim of a "government of laws and not of men." Stolleis explains that "the trends of the secularization, depersonalization and objectification of rule led from God to the earthly god-prince, from there to the mortal god of the Leviathan, and from there to the deified law, which in turn found its culmination in the constitution." The constitution itself was "eventually placed under the providence of a deconfessionalized God acceptable to all."¹⁰²

But the potential for authoritarian power does not disappear with the depersonalization and objectification of rule. In fact, the distanced form of domination inherent in visuality is both consolidated and extended through abstraction. Modern domination is a project of naming, separating and categorizing according to a universal standard. In visual terms that universal standard is the single, disembodied view- particularly the view from above. We can see the modern distancing of subject from object in the depictions of the single eye of god or law, and in the adoption of the "monocular" perspective in renaissance painting- a singular gaze that paradoxically divides what it sees. In the transition to modernity, a transition from the sacred or metaphysical to the abstract, vision, like quantification, became an essential tool for the legitimation of authority, "rendering and regulating the real."¹⁰³ Before that transition, the authority to witness (and by witnessing to determine) the unfolding of time from the position of eternity belonged only to the Divine. After that transition omniscience and the view from eternity are now claimed by secular rulers and institutions, but not only by them. With the rise of single point and linear perspective in

¹⁰² Ibid, 37.

¹⁰³ Mirzoeff, "The Right to Look," 476.

renaissance art, the artist invited the viewer to look through God's eye.¹⁰⁴

The Rise of Cartesian Perspectivalism in Painting

What one saw when looking through "god's eye" was a new visualization of space as rational. With the rediscovery of Ptolemy's *Geography* in 1400, a new conception of space came to dominate geometric thought. Ptolemy's work, written in the middle of the second century CE, was largely informed by the rational geometry of Euclid's *Elements*, written in 300 BCE. The work of both authors had been lost to Europeans for centuries, but were eventually "rediscovered" through contact with Arab scholars.¹⁰⁵ It would not be until the middle of the sixteenth century that translations from Euclid's *Elements* would give Europeans a more direct understanding of Euclidean space. Martin Jay defines Euclidean space as "geometrically isotropic, rectilinear, abstract and uniform."¹⁰⁶ Ptolemy's *Geography*, Crosby explains, "provided rules for depicting with geometric rigor a curved surface (that of the globe) on a flat surface (a map) via a gridwork

¹⁰⁴ In fact, to call this the view from "God's eye", is not strictly accurate, since God, being everywhere, does not look at the world from any one position. However, as I have discussed above, the recurring iconographical theme of depicting God's eye as singular was meant to signify the *oneness* of the divine in monotheistic religions, according to Stolleis. It could also be that, unable to depict God as all-seeing from all-points, this anthropomorphic representation of the divine gained purchase instead, especially as it reinforced the notion of God as "Father", overseer and protector. In any case, it is the *power* inherent in this perspective of the whole from an *external* point that seems to have been transferred gradually to the human perspective in Renaissance and early modern visual representations of space. For this reason, and because it so neatly signals the growing recognition of human agency in early modernity, and the adoption of "remote control" practices and perspectives once held to be the exclusive domain of the Divine, I have retained references to "God's eye" in this section.

¹⁰⁵ Ptolemy's *Geography*, for example, had been translated and improved by Al-Battani in 800 AD and revised by Al-Khwarizma in 820 AD. See John Rennie Short, *Making Space: Revisioning the World, 1475-1600*, (Syracuse: Syracuse UP, 2004), 12-13, 16.

¹⁰⁶ Jay, "Scopic Regimes of Modernity," 5-6.

(of latitudes and longitude).” Though these rules would become indispensable to cartographers, the first to apply them were Italian renaissance artists of the early fifteenth century.¹⁰⁷

In *The Pearly Gates of Cyberspace*, Margaret Wertheim describes the transition over time to the adoption of the linear perspective in art. We see the earliest attempts to represent three dimensional space on flat surfaces in the work of Giotto and other fourteenth century artists who tried to create the illusion of depth. Yet, she says, "Despite [Giotto's] cleverness in simulating depth, there are limits to his illusionistic power. And it is in these limits that we gain a fascinating insight into the huge psychological shift that Western minds would have to undergo before a truly "modern" conception of physical space could emerge."¹⁰⁸ In *St. Francis Banishing Devils from the City of Arezzo*, Giotto had taken pains to represent depth in the details of the buildings. However, the buildings of the city of Arezzo, on the right side of the painting, and the cathedral, on the left, are shown from different perspectives. What was missing at this point was the creation of a unified space, something that would require the artist to draw the image from a single point. With the early fifteenth century translations of Ptolemy's *Geography* into Latin and Italian, renaissance artists were able to develop methods of representing this unified space imagined by Euclid. Their works showcased a new "spatial integrity" in which "all objects appear to occupy one continuous, homogeneous, three-dimensional space."¹⁰⁹

Alberti, Brunelleschi, and Francesca studied methods for representing the "objective" reality of perspectival vision on a two dimensional plane. Alberti, for instance used two identical

¹⁰⁷ Crosby, *The Measure of Reality*, 181

¹⁰⁸ Margaret Wertheim, *The Pearly Gates of Cyberspace, A History of Space From Dante to the Internet*, (New York: W.W. Norton & Co, 2000), 95.

¹⁰⁹ Wertheim, *The Pearly Gates of Cyberspace*, 97

pyramids, their apexes meeting in the middle. One apex corresponded to "the receding vanishing or centric point in the painting and the other (to) the eye of the painter or beholder."¹¹⁰ It is important, Jay says, that the viewing eye, was singular and "static, unblinking and fixated rather than dynamic, moving with ...'saccadic' jumps from one focal point to another...it followed the logic of the Gaze rather than the Glance, thus producing a visual take that was eternalized , reduced to one 'point of view' and disembodied."¹¹¹ In contrast with this central singular point of the observing eye is the separation, categorization, splintering of the observed object. That is, in order to depict a scene or image on a flat surface in a geometrically precise manner, the artist had to find a way of dividing up the three dimensional image, the same way Ptolemy's gridwork did with a globe. Crosby explains that Alberti achieved a "crude kind of spatial quantification" by:

setting up a veil between oneself and the subject to be painted...'with larger threads (marking out as many parallels as you prefer) ...the reality beyond the veil's network should be observed only through the veil ...one was to paint or draw not what one *knew* to be true about the scene- for instance, with parallel lines always the same distance apart- but strictly what one *saw* ...then one would transfer that to a flat surface on which one had carefully drawn lines equivalent to the veil's threads. The veil enabled the painter to quantify not reality, but...the *perception* of reality.¹¹²

Alberti further advised painters to think of the canvas as a window which framed the scene before them. It is interesting to note that this new perspective was called in the Renaissance the *costruzione legittima*.¹¹³ For that is precisely what it does: it constructs a newly legitimized

¹¹⁰ Jay, "Scopic Regimes of Modernity," 6

¹¹¹ Ibid, 7

¹¹² Crosby, *The Measure of Reality*, 184

¹¹³ Wertheim, *The Pearly Gates of Cyberspace*, 107; Crosby, *The Measure of Reality*, 186-7.

frame through which to view the world.

The technique of linear or single point perspective has come to be known, in visual cultures studies, as "Cartesian perspectivalism" because it was Descartes who first postulated a recto-linear conception of space. Martin Jay explains that when we speak of a particular visual culture dominant in modernity it is this "scopic regime" that most often comes to mind.¹¹⁴ In Cartesian perspectivalism, the subject exists at a remove from the object. "The gaze of the painter," writes Norman Bryson, "arrests the flux of phenomena, contemplates the visual field from a vantage-point outside the mobility of duration, in an eternal moment of disclosed presence."¹¹⁵ Under this gaze the relation between spectator and spectacle is severed, as "the objects depicted in geometricalized space" are "turned ... into stone." Thus, Cartesian perspectivalism is criticized for its "privileging of an ahistorical, disinterested, disembodied subject entirely outside the world it claims to know from afar."¹¹⁶ When we reflect on what this distanced depiction of objects in rationalized space means for our relationship with those objects we are better able to understand

¹¹⁴ However, just as Cartesian rationality was not the only important intellectual mode at work in early modern scientific thought- with the Baconian empirical impulse to observe and to accumulate experience being just as essential to legal and scientific thought- neither was Cartesian perspectivalism the only modern European scopic regime. Jay reminds us of the importance of the "art of description" in Northern art. In contrast to the abstraction of Cartesian perspective, the art of the Northern countries tended to focus on the texture and particularity of surfaces...as seen from the perspective of nowhere: "Rejecting the privileged constitutive role of the monocular subject, it emphasizes instead the prior existence of a world indifferent to the beholder's position in front of it." That world is "not contained entirely within the frame" but "seems to extend beyond." Northern art is to empiricism - Baconian, observationally oriented- what Southern is to rationality –the "geometricalized, rationalized, essentially intellectual concept of space." See Jay, "Scopic Regimes of Modernity," 12-13.

¹¹⁵ Bryson, quoted in Jay, "Scopic Regimes of Modernity," 7.

¹¹⁶ Jay, "Scopic Regimes of Modernity," 10.

why visualization is so powerful, how it opens the door to the reorganization of entire societies from a seat of power divorced from those societies.

The adoption of single-point perspective in Renaissance painting was not simply an aesthetic innovation, but neither was it the unequivocal triumph of a quantitative or rational view of the world. The mathematical and geometrical knowledge informing the new techniques were also valued because they were thought to disclose to the painter and viewer the hidden order structuring reality. That is, the desire to represent or define reality through universal, “objective”, quantifiable measurements was new, but this does not mean that the metaphysical content of that reality was annulled. As Jay notes, "linear perspective came to symbolize a harmony between mathematical regularities in optics and God's will."¹¹⁷ Just as European interest in mathematics in the late medieval period was largely philosophical and mystical, the gridwork of geometry was initially incorporated into an essentially qualitative world view. While quantitative measurement was the means by which painters represented three dimensional images on a flat surface, it was not an end in itself.

In fact, as Stuart Clark points out, perspectival painting could be viewed as no different from the optical illusions of magicians, who also drew on mathematics. Clark explains that in the early modern period the senses were not considered reliable conduits of the truth. The sense thought most likely to deceive- because it was the most powerful- was vision. This ambivalent attitude towards vision is said to have continued until well into the seventeenth century.¹¹⁸ Because

¹¹⁷ Ibid, 5-6

¹¹⁸ Stuart Clark, *Vanities of the Eye: Vision in Early Modern European Culture*, (Oxford, Oxford University Press, 2007) 5; 78; 83. While Jay sees the development of linear perspective as

it straddled the categories of truth and illusion, vision could generate ‘radical uncertainty’. As a recurrent subject of philosophical, religious or occult consideration, it revealed a deeper uncertainty about what was “ontologically” real or not. Sixteenth century philosophical skepticism further challenged the relationship between vision and knowledge ‘radical[ly] calling into question ... assumptions about the truth, certainty, and objectivity of sensory knowledge’¹¹⁹ Just as doubt would lead Descartes to the certainty of the thinking subject, these questions about the foundations of truth would bring many early modern thinkers closer to new certainties, particularly the certainty that an impartial, objective order was discoverable.

I include this brief account of Clark’s arguments not in order to dismiss the important role of vision in modernity but to remind the reader that the transition to modernity was the work of centuries, in which sacred and secular, mystical and scientific were intertwined. Moreover, as a site upon which foundational truths of the culture were questioned, and new foundations fashioned, vision was central to the formation of a modern world view. In time, the sacred meaning of linear perspective, rationalized space and the universal laws of mathematics and geometry declined in importance. What remained was the disembodied eye of the viewer, whose very removal from the scene rendered it “objective.” As Jay explains, if at one time, God’s will and the ‘mathematical regularities in optics’ were linked, then “even after the religious underpinnings of this equation were eroded, the favourable connotations surrounding the allegedly objective optical order

facilitating the rise of “ocularcentricity”, or the hegemony of vision in modernity, Clark maintains that the culture was already ocularcentric by the time Renaissance artists were using linear perspective. And while vision was central to the culture, its power and relationship to knowledge was paradoxical, both revealing and concealing truths. Thus, it was a source of “radical uncertainty.”

¹¹⁹ Clark, *Vanities of the Eye*, 301.

remained powerfully in place."¹²⁰

Renaissance and early modern innovations in visual representation both reflected and amplified a growing consciousness of space as an objective and calculable phenomenon. Visual representations of reality that placed the viewer's perspective *outside* of depicted scenes helped to render that reality objective. Just as quantification provided a means of orientation in a world whose boundaries were shifting, the perspective of the removed observer offered a new framework through which to view the world. The rationalized conception of space that gained purchase in this period made it possible to organize the world in alignment with the will of the observer.

Few professions arising in the early modern period can better demonstrate this new visual and quantitative representation of reality than that of the surveyor. By measuring and mapping the lands of estates, modern surveyors would facilitate the reordering of space in alignment with the desires of their employers, and with an ascendant conception of land as an objective, quantifiable and improvable commodity. Below, I will examine the contribution of surveying to the reordering of England's socio-economic structure and the establishment of new standards of knowledge and legitimacy in the early modern period. However, because I have argued above that uncertainty and anxiety played a role in the turn to quantification and visuality in the formation of European modernity, I wish first to consider some of the preoccupations particular to the Tudor period in which the surveyor first appeared.

¹²⁰ Jay, "Scopic Regimes of Modernity," 5.

Land and Knowledge in Sixteenth Century England

Tudor Instability

While the cultural disorientation distinctive to the late medieval period had lessened by the time the professional surveyor first appeared in the middle to late sixteenth century, early modern Europe was nevertheless steeped in its own insecurities.¹²¹ Some of these insecurities were a continuation of the same material factors which had plagued the continent for centuries: dramatic population shifts, rising food prices, epidemic diseases and popular uprisings. But what heightened the tensions felt with each such crisis was the marked polarization of wealth and the erosion of social relationships which had provided some shelter from the worst exposure to dearth and disorder.¹²² Across Europe, the feudal social arrangement was coming apart. This was particularly the case in England, where the ruling class, fearful of a desperate and uncontained populace, disseminated an "ideology of order."¹²³

Sixteenth century England had witnessed dramatic upsurges in both prices and population. Agricultural prices, according to Coward, rose by 250% between 1510 and 1550, and the middle of that century saw sharp increases in population.¹²⁴ When populations soared in urban settings the overcrowded conditions encouraged the spread of diseases. In 1563, for example, a plague wiped out one quarter of London's population.¹²⁵ Greater activity in the market for land raised

¹²¹ John Walter and Keith Wrightson, "Dearth and the Social Order in Early Modern England" in *Past and Present*, no. 71, (1976): 22.

¹²² Walter and Wrightson, "Dearth and the Social Order," 23.

¹²³ *Ibid*, 23

¹²⁴ Barry Coward, *Social Change and Continuity: England, 1550-1750*, (London: Longman, 1997), 36, 39.

rents, throwing ever greater numbers of smallholders and other peasants off of the land and into wage dependence. But there were far fewer jobs than people seeking them, and as unemployment soared their wages plummeted, further pushing migration to the cities.¹²⁶

Caught at the intersection of all these factors, and exponentially exposed to their threats, were the masses of the poor. It is thus not surprising that the Tudor period saw a number of popular uprisings, including Kett's Rebellion in 1549, followed by one in Kent in 1554, and in the north in 1569.¹²⁷ What is rather surprising is that popular protests were not more prevalent in this period. However, as Walter and Wrightson note, the fact that uprisings such as grain riots were "geographically restricted in their incidence and clustered almost exclusively in years of dearth could make their threat the more alarming...in a society in which inequalities were marked, poverty endemic and powers of repression limited, any outbreak of disorder was potentially dangerous."¹²⁸ While the insecurity faced by the poor was such that their very survival was under threat, the propertied classes feared for the survival of the social order from which they benefited.

If there is one figure, towards whom Tudor fears of disorder were channeled most vehemently, it was the vagrant. In her landmark study of the Tudor and Stuart discourses on vagrancy, A. L. Biere explains that the perceived threat of hordes of "masterless men" roaming the countryside had its origin in actual social phenomenon. From the 1560s to the 1640s "population

¹²⁵ Kamen, "Early Modern European Society," 25.

¹²⁶ Lawrence Stone, "Social Mobility in England, 1500-1700," *Past and Present*, no. 33 (1966): 26.

¹²⁷ Paul Slack, *Rebellion, Popular Protest and the Social Order in Early Modern England*, (Cambridge: Cambridge University Press, 1984), 2.

¹²⁸ Walter and Wrightson, "Dearth and the Social Order," 27.

growth, landlessness and the penury and insecurity of wage-labour" created a small but highly visible subpopulation of people, mostly men, who had little option but to travel from parish to parish in search of work or parish aid.¹²⁹ The novelty and visibility of these wanderers inspired a torrent of fearful tracts which magnified the threat they posed beyond reason. Vagrants, beggars, and vagabonds were viewed as the primary agents responsible for spreading sedition and disease. They were said to have a secret subculture bent on thieving and confidence tricks, and, ultimately, on the undoing of the commonwealth. Above all, the fixation on the figure of the vagrant can be explained by his mobility: he was the incarnation of wider fears about both geographical and socio-economic mobility. He was a stranger whose movements were uncontained and unpredictable. In short, "the masterless man represented mutability when those in power longed for stability."¹³⁰ It was this world beset by fears - both reasonable and exaggerated - of chaos, into which the professional surveyor first made his entrance. His practices were, in one sense, a response to the chaos. In another way they aggravated the real conditions of insecurity and instability.

Early Surveying Practices

I have so far been referring to surveyors and their practices as though they were entirely strange to those who first witnessed their arrival in the mid sixteenth century. This is not, strictly speaking, the case, for surveyors had for centuries played a semi-regular role in maintaining the feudal system, whether for the purpose of military reconnaissance of territories or in order to detail the layout of estates, usually as representatives of the Crown.¹³¹ Even the taking of measurements and

¹²⁹ A.L. Biere, *Masterless Men*, 14.

¹³⁰ *Ibid*, 9.

the use of the visual medium of maps were not outside the scope of the surveyor's remit. In that these royal representatives obtained knowledge of the land's shape, contents and uses and transmitted that knowledge back to the distant power of the king, their work presaged that of the modern surveyors. And yet, this knowledge was attained with the objective of affirming and maintaining the existing social system. The "administration of the court of survey" according to McRae, focused on "examin[ing] records of tenure and receiv[ing] tenants for their performance of homage and fealty."¹³² This is the meaning given by Fitzherbert in his 1523 *Boke of Surveying and Improuements*, the first English text devoted to the art of surveying. The surveyor's role, as described by Fitzherbert, was one of stewardship, and in this it aligned with the prescribed relationship between man and nature in the Bible. According to Klein, Fitzherbert saw the surveyor as an

'overseer' who disregards details of topography and concentrates instead on a whole range of social and economic issues arising out of the complex network of duties and responsibilities that tied soil and subject, tenant and lord together. Regular surveying, from the perspective of a landowning aristocracy, was necessary to ensure both the continuity of possession and the inner stability of a cultural construct in which land was conceived of as the original source of a complex hierarchical sphere of social interaction.¹³³

The Advantages of Modern Surveying

But signs of a new role for surveyors can be detected in Fitzherbert's work as well, particularly when he advises landlords to attain 'parfyte knowledge' of their lands and tenants, and to make use

¹³¹ Andrew McRae, "To Know One's Own: Estate Surveying and the Representation of the Land in Early Modern England" in *The Huntington Library Quarterly* 56, no. 4 (Autumn, 1993): 335.

¹³² McRae, "To Know One's Own," 336.

¹³³ Bernhard Klein, "The Lie of the Land: English Surveyors, Irish Rebels and "The Faerie Queene," *Irish University Review* 26, no.2 (Autumn/Winter, 1996): 210.

of "new standards of information regarding the size and legal basis of landholdings". According to Macrea "this knowledge is clearly structured around an *economic* appreciation of the land."¹³⁴ One reason for this new stress on the economic value of land was that there was a greater demand for land and with this, rents were increasing, necessitating "a clearer and more accurate delineation of property boundaries."¹³⁵

The greater activity in the land market by the time of Fitzherbert's writing was a consequence of a number of, often contradictory, factors. On the one hand, the population which had been so diminished by the end of the previous century had begun to rise again, which put a premium on the land available. On the other hand, as Macrea points out, with the dissolution of the monasteries, a considerable amount of land was suddenly made available, stimulating the market in private property.¹³⁶ An even more important stimulant to the land market stemmed from the fifteenth century demographic crisis: the nature of the relationship between tenants and landlords had begun to change, as had the primary objectives of landlords. The depopulation which followed the Black Death meant that the labour of tenants could no longer be taken for granted. The demand for labour was such that serfdom disappeared and what Wood calls "extra-economic coercion" was in decline.¹³⁷ Landlords now preferred to rent out demesne lands to large tenants,

¹³⁴ Macrea, "To Know One's Own", 339.

¹³⁵ Roger J. P. Kain, "Maps and Rural Land Management in Early Modern Europe" in *The History of Renaissance Cartography: Interpretive Essays, The History of Cartography, Vol. 3; Cartography in the European Renaissance, Part One*, ed David Woodward, (Chicago and London: University of Chicago Press, 2007), 716.

¹³⁶ McRae, "To Know One's Own," 339-340.

¹³⁷ Extra-economic coercion refers to the manner by which surplus labour is extracted in non-capitalist social formations. In capitalism, Wood explains, people are economically compelled

converting “servile tenures into rent-paying copyholds.”¹³⁸ What all of these conditions added up to was an unprecedented amount of social mobility, and an increase in the number of land transfers, necessitating more reliable and detailed information on the quality and quantity of land changing hands.

As is evident in the title of Fitzherbert's book, "improvement" had now become an important objective in the management of lands. But, as Warde reminds us, at this early stage improvement -more often called "approement"- was much more narrowly defined than it would be by the following century. The aim of improvement, as used by Fitzherbert, was to increase the profit accruing from land, by raising rents and more prudently practicing husbandry.¹³⁹ Fitzherbert also advised landlords to enclose lands as a way of raising rents. But, on the whole, the enclosures of land during this period were primarily for the purpose of grazing sheep. Despite the outrage of critics such as Thomas More- who charged that such enclosures depopulated rural areas so that it seemed that the "sheep were eating men"- Wrightson argues that depopulation was as much a cause as a result of enclosures: "to the landlords involved, enclosure was less a strategy of improvement

to labour, whereas, in other social contexts they can be compelled “by means of direct coercion- such as the military, political, and judicial powers that enable feudal lords to extract surplus labour from peasants.” See Ellen Meiskins Wood’s *The Origin of Capitalism: A Longer View* (London: Verso, 2002), 2.

¹³⁸ Keith Wrightson, *Earthly Necessities: Economic Lives in Early Modern Britain*, (New Haven and London: Yale UP, 2000) 99-100. Wrightson explains that “land no longer burdened with servile obligations became more attractive to potential buyers high mortality rates and the extinction of tenant families brought land on to the market more frequently. The greater availability of land made peasant families less reluctant to alienate parts of their holdings. Land transfers grew in both size and frequency and were less defensively contained within particular family and kinship groups” 100.

¹³⁹ Paul Warde, “The Idea of Improvement c.1520-1700” in *Custom, Improvement and the Landscape in Early Modern Britain*, ed. Richard Hoyle, (Farnham, UK: Ashgate, 2011) 129-130.

inspired by commercial ambition, than a low-cost, second best solution to the problem of tenanting their lands."¹⁴⁰

At this time improvement and enclosure did not yet constitute the powerful and wide-reaching discourse that they would in the seventeenth century. Nor had the commercial value of land become the dominant factor calling for its more precise measurement. In fact, the turn towards more quantitative and standardized measurements of land was as much precipitated by non-economic changes to the feudal social organization. Just as there was a waning of military and other non-economic obligations tied to tenancy on estates, the authority of manorial courts was also in decline. Previously, disputes over land would be dealt with at the local level of the manor, but by the sixteenth century the common law had begun to extend its influence over such matters. Common law attorneys and barristers from the Courts of Inn from London began to step into the roles previously performed by local stewards.¹⁴¹ Clearly, it was easier for these representatives of the larger, common law system to convert local knowledge of the land into a more universal standard than it would have been to judge each case by the particular standards of its locality. As McRae explains, there was a "trend towards the solidification of the fluid customary claims of landlord and tenant into rights which could be maintained at common law."¹⁴²

Thus, the push for more accurate, precise and standardized measurements and representations of land did not, as opponents of the new surveying would charge, come only from the avaricious landlords. It was also a result of the growing interest in and legitimacy of

¹⁴⁰ Wrightson, *Earthly Necessities*, 103-4.

¹⁴¹ McRae, "To Know One's Own," 340.

¹⁴² *Ibid*, 340. Here McRae quotes C.W. Brooks, *Pettyfoggers and Vipers of the Commonwealth* (Cambridge: Cambridge University Press, 1986), chapters 4-5.

mathematical and geometrical knowledge among agents of the state. In fact, the new science of land measurement at once took shape from and fed into broader historical developments such as the professionalization of the practical arts, the spread of the common law, and the centralization of the English state.

Customary Knowledge of the Land

It should not be imagined that measurement, boundaries, and titles to land were unimportant before the modern surveyor or the common law lawyers stepped in. The customary claims to the use of land may have been "fluid" in comparison with the system of property which would come to replace them, but the feudal arrangement of land and its resources was hardly a disorganized free-for-all absent of any standards. The difference was that the standards were local, and this means much more than a spatially limited scope of validity: these standards were embedded in modes of regulation and the social structure of the manor and village. They reinforced and were reinforced by the collective memory of the community, the particular relations between its members, the specific uses of each part of the land.

One way to try to understand the integration of local knowledge of the land with every other aspect of community life is to look at the evolution of units of measurement used for land, particularly the acre. Traditionally, the land was divided according to the agricultural practices of a region, which included "dayworks, ploughlands, hides and knights' fees." For example, a "hide" signified the amount of land that could be tilled with a team of oxen in a year and a day. The acre, originally indicating any open -untenanted- land or forest, came to mean, with rise of agricultural land use, a piece of pastured or tilled land of a definite size.¹⁴³ A legally prescribed

standard for the acre was enacted as early as 1305. This “statutory acre” was defined as a plot of land four by forty ‘perches’ or ‘rods,’ with each rod measuring 16.5 feet. In practice, however, the rod’s length continued to vary according to the region, the quality and particular use being made of the land.¹⁴⁴ Moreover, as late as the publication of John Rathbourne’s textbook *Surveying* in 1616, it was not assumed that tenants would be familiar with the statutory acre. Rathbourne advises surveyors to ask tenants what Meadow, Arable or Pastures they hold, “and their severall names and quantities, as he esteemeth them; *and if he know not what acres they containe (as most tenants will seeme ignorant thereof)* let him expresse of his Meadow how many daies mowing, of his Arable how many daies plowing, and of his Pasture how many Beast-gates, and the like.”¹⁴⁵ Clearly, what mattered most in customary measurements of land was the experience of the particular forms of labour upon it.

If the extent of land was known and expressed idiosyncratically and in terms of the land’s particular qualities and local uses, its boundaries were known and remembered collectively

¹⁴³ Ibid, 345-6. On the regional variations of the customary (non-Statute) acre, see Robert S. Dilley, “The Customary Acre, An Indeterminate Measure,” *Agricultural History Review* 23, no. 2 (1975): 173-176. For a detailed discussion of the different ways that land was customarily measured in England in the Middle Ages, please see Andrew Jones, “Land Measurement in England, 1150-1350,” *Agricultural History Review* 27, no. 1 (1979).

¹⁴⁴ Pat Rogers, “Dividing Lines: Surveyors and the Crossing of the Colonies,” *Lumen*, 31 (2012): 48-9. <https://doi.org/10.7202/1013066ar>. Rogers notes that only with the popularity of the measuring chain designed by Edmund Gunter in 1620, did the length of a rod (one quarter of a chain, that chain being made up of 100 links extending 22 yards) become more firmly fixed as a unit of measurement. In time, “the statute acre now becomes more easily identified in almost metric terms as 10 square chains (or 100,000 square links), most simply envisaged as a strip of land in the open fields system that measured 220 yards by 22 yards.”

¹⁴⁵ Aaron Rathbourne, *The Surveyor: In Four Bookes* (London: W. Standsby, 1616) Book IV, Chapter 10, 210. The italics are my own.

https://books.google.ca/books/about/The_Surveyor_in_Foure_Bookes_by_Aaron_Ra.htm?id=KIM4cgAACA&redir_esc=y.

through the performance of ritual perambulations. Perambulations were public ceremonies in which either a priest or steward of the estate walked the bounds of the parish in the company of community elders and a handful of young boys. The boys often carried boughs of willow and either used these to beat stones and other landmarks along the boundary, or were themselves beaten with the boughs, or thrown against the landmarks in order that they would remember them.¹⁴⁶ This "beating of the bounds" is said to have originated in the late winter Roman festival of Terminalus, a celebration of the god of landmarks, but it also shares qualities with pagan rituals of Viking origin, which involved beseeching the divine to bless the land with bounty. By the fifth century the Christian Church began to incorporate these practices into the observance of Rogation week and Ascension Day.¹⁴⁷ Thus, in the medieval period it was usual for the parish priests to lead the procession and to bless the land. By the Tudor period the Catholic features of perambulations were disallowed but their practical and secular role in communally confirming of the boundaries and uses of the land was not discouraged and the surveyor took the role of leading the procession.¹⁴⁸

¹⁴⁶ "Beating the Bounds" in *Chamber's Encyclopedia: A Dictionary of Universal Knowledge, Vol. I*, (London: W. and R. Chambers Ltd., 1874), 779. <http://books.google.ca/books?id=ma3wA59hNXMC> (Accessed October 17, 2016). For a more recent discussion of the social and religious character of the practice, and of the celebration of Rogantide see Andy Wood, *The Memory of the People : Custom and Popular Senses of the Past in Early Modern England* (Cambridge ; New York: Cambridge University Press, 2013), 275-280; and Steve Hindle, "Beating the Bounds of the Parish: Order, Memory and Identity in the English Local Community, c. 1500–1700," in *Defining Community in Early Modern Europe*, eds. M. Halvorson and K. Spierling, (Aldershot: Ashgate, 2008), 205.

¹⁴⁷ "Beating the Bounds", 779.

¹⁴⁸ Macrea, 343. Also see Sarah S. Hughes, *Surveyors and Statesmen: Land Measuring in Colonial Virginia* (Michigan: University of Michigan Press, 1979), 29, and Nicholas Blomley, "Disentangling Property, Performing Space" in *Performativity, Politics and the Production of Social Space*, eds. Rueben Rose-Redwood and Michael Glass, (London and New York; Routledge,

Perambulations of the boundaries of land were therefore an exercise in collective memory.

Customary knowledge of land was largely unwritten, its dimensions measured by daily experience, and its borders not imagined from a distance as in a visual map but landmark by landmark in the memories of old and young. In practice this way of knowing the land would remain valid for centuries, but it was in the middle of the sixteenth century that a more abstract grid of knowledge and representation was superimposed upon it. Gradually, this foundation of customary knowledge was translated into quantitative, visual, and legal representations of reality.

Just as the ritual of perambulation was a way of recording the parish boundaries in the memory of the community, local memory was also the site where knowledge of rights to land and its resources was stored. Exploring the transition to modern property law through an anthropological lens, Alain Pottage explains how entitlements to land were transferred from the repository of local memory to written legal documents. Ideally, conveyancing contracts sought formal proof of title to land but ownership of land was often less certain or formally articulated in practice. Thus, local memory often "served as the medium through which doubts could be defrayed so as to reconcile theory with practice."¹⁴⁹ Proof of the validity of a paper title, for instance, rested on the local reputation of the one claiming ownership- so that a potential purchaser of land was required to lay his trust in local knowledge. Often this knowledge took the form of narrative descriptions in which ownership and boundaries intertwined with local landmarks which were

2015), 148. The sources on perambulation seem to either place the priest, a steward, or a local surveyor with his land-meter at the head of this procession, but what really mattered and seems to have been constant was the transmission of customary knowledge of the land from the eldest to the youngest generations.

¹⁴⁹ Alain Pottage, "The Measure of Land" in *Modern Law Review* 57, no.3 (January, 2011): 364.

themselves “constituted or recognized as such only according to the images which local culture superimposed upon the landscape.”¹⁵⁰ Before the bureaucratization of land transfer, identification and proof of title could only come from someone with:

A local sense of where rights began and ended, a local sense of place and property... lines of property followed lines of topography that were drawn not according to external standards of proportion and orientation, but according to a logic of localized practice....the scales of measurement were themselves the products of a local sense of space and time. Spatio-temporal relations were plotted not according to 'clock-time' but according to the temporality of a practical orientation to the world.¹⁵¹

Thus, customary knowledge of land entitlements, was "self-referential" and circular- enclosed and inaccessible from a distance, or from any outsider.

The Legitimizing Discourse of Scientific Surveying

So how could this knowledge of the land's extent, boundaries and ownership- the particular knowledge that was embedded in the local culture- ever become supplanted by an external regime of standardization? The answer, as I have already suggested above, is that in the early modern period, new kinds of knowledge and of property had begun to gain legitimacy, particularly among the gentry, the mercantile class, and the nascent profession of mathematically informed surveyors. I say that they had *begun* to gain legitimacy because the transition to wide acceptance of the new standards of knowledge and property was neither smooth nor sudden. There was a considerable and lasting resistance to these new standards, which I will discuss below. But even among some of the most vocal advocates of surveying, an instinct to protect the old social order persisted well into the seventeenth century, and many surveyors themselves were reticent to use new instruments

¹⁵⁰ Pottage, “The Measure of Land,” 365.

¹⁵¹ *Ibid*, 365-6.

and methods.¹⁵²

Nevertheless, by the turn of the seventeenth century, there was a convergence of factors promoting the quantitative measurement and economic valuation of land. These include the rising prestige of mathematical and geometric knowledge, and its association with high social status; economic pressures which increased the value and exchange of land; and the professionalization of practical artisans such as surveyors. From the late sixteenth century, then, abstract representations of reality- quantitative, visual, legal and scientific- reinforced one another, and together they constituted an objective standard of validity. If this new standard of validity initially drew upon local and particular knowledge, once codified, its authority would come exclusively from geographically and epistemologically distant sources.

Before the sixteenth century, according to Bendall, the landed gentry disdained detailed knowledge of and involvement with the management of their estates. Similarly, the practicality of science and mathematics meant that they were unsuitable subjects in the education of gentlemen. By the turn of the seventeenth century this attitude had begun to change, as scientific knowledge and education came to be more highly valued in European culture generally.¹⁵³ Barber suggests that in the case of map knowledge, certain schoolbooks were promoting the utility and “gentlemanly accomplishment” of map making as early as the 1530s. Moreover, the Tudor period witnessed the “growing popularity of the concept that arithmetic could be of immense practical use in most fields of human endeavor and particularly in map- and chartmaking, where

¹⁵² Blomley, *Disentangling Property*, 27; Also see Peter Barber, "Mapmaking in England, ca. 1470-1650," in *The History of Cartography, Cartography in the European Renaissance*, ed. David Woodward (Chicago, University of Chicago Press 2007), 1644.

¹⁵³ Bendall, "Maps, Land and Society," 159.

mathematical precision, as made possible by scientific instruments, could assist in establishing geographical truth.”¹⁵⁴

As discussed above, this European turn towards mathematics and scientific knowledge was stimulated by contact with Islamic scholars and the translation of classical Greek texts into Latin in the late medieval and renaissance periods. The appeal of scientific and mathematical knowledge in sixteenth century England was stimulated by the translation into English of classical texts such as Euclid's *Elements of Geometrie*, as well as a number of husbandry manuals from the continent.¹⁵⁵ According to Barber, the 1570 publication of the English translation of Euclid's *Elements* accounted for the “increasing prestige enjoyed by Euclidean geometry and scientific measurement” in late sixteenth century England.¹⁵⁶

The importance of mathematics to surveying was further disseminated by homegrown texts which taught readers the basic principles of arithmetic and geometry necessary for accurate land surveying. The more theoretical of these were Robert Recorde's 1551 *The Pathway to Knowledge* and Leonard Digges' 1562 *A Booke Named Tectonicon*. Other popular works offered

¹⁵⁴ Barber, “Map-making in England,” 1641.

¹⁵⁵ Kain, “Maps and Rural Land Management in Early Modern Europe,” 705; and Warde, “The Idea of Improvement,” 131. Among the most important sixteenth century continental works related to surveying (covering topics ranging from astronomical measurement and triangulation, to Euclidean geometry and innovative measuring instruments) were: Peter Apian's *Astronomicum Caesareum* (1540) and *Cosmographicus liber* (1524); Reiner Gemma Frisius's *Libellus de locorum describendorum ratione* (1533); Oronce Fine's *De mundi sphaera* (1542); and Sebastian Münster's *Cosmographia* (1544). Please see Uta Lindgren, “Land Surveys, Instruments, and Practitioners in the Renaissance,” in *The History of Renaissance Cartography: Interpretive Essays, The History of Cartography Volume 3, Part One*, ed. David Woodward, (Chicago: University of Chicago Press, 2007), 480-484.

¹⁵⁶ Barber, “Mapmaking in England,” 1641.

more practical advice on the new standards to be followed by practitioners, including Edward Worsop's 1582 *A Discoverie of Sundrie Errours and Faults Daily Committed by Landmeaters*, and Valentine Leigh's 1577 *The Most Profitable and Commendable Science of Surveying*.¹⁵⁷ The message imparted in such titles was that objective and scientific standards distinguished the nascent profession of surveying from the antiquated, unreliable and even dishonest practices of pretenders and amateurs. If landlords wished to avoid being cheated by such pretenders it was necessary for them to gain a scientific understanding of the art of surveying themselves.¹⁵⁸

Blomley points out that the surveying manuals of the late sixteenth and early seventeenth century tended to be paradoxical on the subject of the credibility of their craft, revealing the insecure status of the profession at that time. On the one hand, the authors were emphatic that, when practiced according to mathematical principles, surveying guaranteed *certain* knowledge; on the other hand, to distinguish their own books as the more scientific and credible guides to surveying, authors tended also to stress the unreliable and dishonest nature of many surveying practitioners.¹⁵⁹ Such mixed messages may not have helped the cause of a nascent profession seeking social legitimacy. At the same time, Netzloff suggests, these authors underscored their “possession a specialized body of knowledge...as a marker of social distinction”, a “professional identity that differentiated them from practitioners lacking this level of expertise.”¹⁶⁰ By

¹⁵⁷ Ibid, 1618; and McRae, “To Know One’s Own,” 335-336. Also see Martin Brückner and Kristen Poole. “The Plot Thickens: Surveying Manuals, Drama, and the Materiality of Narrative Form in Early Modern England,” *English Literary History* 69, no. 3 (2002): 617.

¹⁵⁸ McRae, “To Know One’s Own,” 341, Bendall, “Maps, Land and Society,” 141.

¹⁵⁹ Blomley, “Disentangling Property,” 27.

signalling the expert knowledge, inherent credibility and technical innovation essential to surveying, its advocates attempted to elevate a craft that was eminently practical into to a profession meriting the recognition of those with high social status. In fact, as Blomley notes, surveying did become, by the turn of the seventeenth century, “entangled in and constitutive of emergent networks of social distinction and professionalism”¹⁶¹

The stress on mathematical expertise in the surveying manuals seems to have been an essential strategy for persuading the gentry of the indispensable authority of the surveying profession. According to Johnson, in the late sixteenth century, surveying was but one of a larger set of practical and mechanical arts populated by self-proclaimed “mathematicalls,” men committed to the promotion of mathematical knowledge. Of the many advantages to this knowledge that they touted, “a primary asset was that of certainty: the rigorous demonstrations of Euclidean-style geometry were proclaimed as a standard of truth to which other arts could only aspire.”¹⁶² Surveying advocates drew upon this discourse of mathematical certainty when advertising to landlords that their methods would achieve “parfait knowledge” of their lands. And this tactic, in turn, fed into the contemporary context, in which the value and purpose of land were undergoing reappraisal. From the mid sixteenth century, price inflation, rising

¹⁶⁰ Mark Netzloff, “Introduction,” in *John Norden’s The Surveyor’s Dialogue (1618): A Critical Edition*, ed. Mark Netzloff, (Farnham UK: Ashgate Publication, 2010), xiii.

¹⁶¹ Blomley, “Disentangling Property,” 26. One such network developed within Gresham College in London. Established in 1597, Gresham became a centre for learning geographical and mathematical theory which could be applied in the practical arts, including “navigation, surveying, gunnery, architecture, and mensuration.” It also brought practical artisans under the tutelage of its Oxford and Cambridge lecturers. See Stephen Johnston, “Mathematical Practitioners and Instruments in Elizabethan England” *Annals of Science*, 48 (1991): 319; 326.

¹⁶² Stephen Johnston, ‘Making Mathematical Practice: Gentlemen, Practitioners and Artisans in Elizabethan England’ (Ph.D. Dissertation: Cambridge University, 1994), 29.

population and an increasingly active land market had caused estate owners to see “Every acre of land” as “more valuable in itself and as a resource that had to be fully exploited.”¹⁶³ Under these conditions, the manuals suggested, landlords would be wise to choose surveyors knowledgeable in mathematical principles and the latest instruments, for only they could uncover the true value of the land.

The surveying discourse of this period was therefore at the intersection of two emerging trends in early modern England; the reevaluation of property as a measurable commodity, and a new standard of truth, as measurable, demonstrable, and universal. Both of these trends were disseminated among the gentry, as new means of maintaining their status. At the same time, the gentry’s very involvement in these trends conferred credibility upon the new notions of property and knowledge.¹⁶⁴

Moral Opposition to Surveying

Ironically, while some of these early surveying manuals trumpeted the technical innovations and scientific standards of the new surveying, it was these very innovations and standards that most bothered its critics. The new emphasis on precise measurement of land seemed to go against the old spirit of surveying, the conservation of an intricate social system in which rights and duties

¹⁶³ Barber, “Map-making in England,” 1638.

¹⁶⁴ In fact, Shapin has argued that in the seventeenth century, the authority and credibility attached to gentlemanly status, was gradually transferred to the knowledge produced by the emerging scientific community. For an extended discussion of the intersections between gentlemanly social status, credibility and the scientific production of knowledge in seventeenth century England, see Steven Shapin, *A Social History of Truth: Civility and Science in Seventeenth-Century England* (Chicago: University of Chicago Press, 2011).

were interwoven and embedded in the land itself. Intent upon the land's extent, the gaze of the new surveyor seemed to overlook the social life that grew upon it. Such an omission offended Christian morality, for, as one Protestant critic argued in 1548, "God hath not sette you to surveye his landes, but to playe the stewards in his householde of this world, and to see that your pore below tenantes lacke not they necessaries."¹⁶⁵ As God's steward, man had a duty to care for the things of the world and it was presupposed that in doing this he acted humbly as God's agent: the world was not his own property to measure and calculate "to the utmost acre." Modern surveyors offended on both of these counts: they did not nurture or protect what grew in God's garden and they acted not as agents of God but of the landlord. As it was the landlords who were guilty of the greater transgression of usurping God's role of absolute property owner, they did not escape moral censure: the ultimate cause of the new surveying, according to critics, was the "avariciousness" and "covetousness" of a new breed of landlords. But as the visible agents of both greedy landlords and a new calculative and metrological ethos, surveyors bore the brunt of criticism.

Of the voices raised against modern surveying, those belonging to moral or political authorities naturally carried the furthest. Preachers such as Robert Crowley lamented the passing of a moral order in which the weak were protected and men did not overstep their assigned roles to trespass into God's own territory. Political leaders and other powerful members of the gentry likewise viewed surveying - with its "new methods of geometrical measuring, strict legal categorizations of tenurial relationships and mysterious tables for the determination of land values"- as a threat to the existing social order.¹⁶⁶ In fact, moral concern for vulnerable tenants

¹⁶⁵ Robert Crowley quoted by McRae, "To Know one's Own," 334.

¹⁶⁶ Ibid, 334.

often overlapped with a fear of widespread social disruption.

One common complaint against modern surveying was that it facilitated enclosures, which, in turn, led to the depopulation of rural villages. The fear was that if the tenants were made too unhappy, if they were deprived of the most basic shelter from dearth and ill fortune, they might add to the number of vagrants spreading across the nation like a virus.¹⁶⁷ If the figure of vagrant was the personification of the Tudor fear of disorder and uncontrollable mobility, the figure of the surveyor was his unlikely counterpart. Both were necessarily strangers and outsiders. And while the surveyor, in contrast with the vagrant, represented the interests of property, this new conception of property was not yet synonymous with order. The novelty and impact of the new surveying methods introduced a different kind of disturbance and mobility by thrusting the people and land forward into an unknown future. But the discourse against the surveyor was far less vociferous than that against the vagrant. And in just a few generations the suspicion of the former would fade away.

*Defending the “Upstart Art” of Surveying*¹⁶⁸

How did advocates of surveying manage to quell the voices raised against it in such a relatively short period of time? According to McRae, at least twenty English language works on surveying have survived from the period between 1520 and 1650.¹⁶⁹ The earlier works, especially

¹⁶⁷ Edwin F. Gay, “The Midland Revolt and the Inquisitions of Depopulation of 1607,” *Transactions of the Royal Historical Society*, 18 (1904): 213. <http://dx.doi.org/10.2307/3678075>

¹⁶⁸ It was with this disparaging term that the character of the farmer in *The Surveyor’s Dialogue* dismissed modern surveying practise. See John Norden, *John Norden’s The Surveyor’s Dialogue (1618): A Critical Edition*, ed. Mark Netzloff, (Farnham, UK: Ashgate publishing, 2010.)

those written before about 1620, constituted a defensive discourse on the profession. Because the early proselytizers of surveying were very much aware of the charges being levelled against the profession, their manuals often took the form of imagined dialogues between a representative of the profession and his various critics. John Norden's *Surveyor's Dialogue*, first published in 1607, is perhaps the best known example of this pedagogical approach. The work contains a series of fictional dialogues between the surveyor and different persons related to the land. The surveyor speaks with the tenant farmer, the landlord, and the potential purchaser of the land and responds to each criticism or concern in turn.

The defensive stage of the surveying discourse took moral criticisms of the profession seriously. Authors were quick to assure critics that far from being a threat to the existing order, modern surveying techniques were the best means to its preservation. The result however, was often logically inconsistent, as authors such as Norden tried to fuse together the new scientific rationality and the patriarchal ideals of the feudal order. Tenants were encouraged to submit to the objective standards of measurement as an extension of their submission to their lords.¹⁷⁰

While this contradiction conveniently advanced the interests of the landlords over those of tenants, it also reflects the actual coexistence of “traditional” and “modern” worldviews at the turn of the seventeenth century. In his preface to the reader Norden is quick to assure the reader that, though spiritual things are greater, the worldly concerns associated with surveying are nevertheless divinely sanctioned. For though “no man taking an extraordinary care, can add of himself, one iota

¹⁶⁹ McRae, “To Know One’s Own,” 336.

¹⁷⁰ John Norden, *John Norden’s The Surveyor’s Dialogue (1618): A Critical Edition*, ed. Mark Netzloff, (Farnham, UK: Ashgate publishing, 2010), 7.

of increase of any good thing, neither can he of his own proper industry, assure himself of any part of true prosperity in this life, *yet must he not therefore dissolutely neglect his uttermost lawful endeavor to advance his own welfare.*"¹⁷¹ Here we have the coexistence of two quite opposing views of human potential and agency: Norden seems to cling to the pre-modern view that God is the source of everything, that, no matter how hard they work, humans cannot assure themselves of anything or determine future outcomes. Instead, they have a duty to care for their own welfare, because of "our original disobedience wherein is imprinted this *Motto or Poesy* of our shame: *with the sweat of thy face thou shalt eat thy bread, all the days of thy life.*"¹⁷² Thus, far from being immoral, a concern for worldly things - such as the extent of one's lands - is part of our penance for original sin. All must work. Those of higher status cannot, of course, be expected to actually sweat, but they do have a duty to God, to their families and to the Commonwealth, to work by augmenting their revenues.¹⁷³

¹⁷¹ Norden, *John Norden's The Surveyor's Dialogue*, 7. Italics added.

¹⁷² *Ibid*, 7.

¹⁷³ At times, Norden actually reinforces the feudal idea of the mutually beneficial relationship between landlord and tenant, reminding the reader that "how great or powerful soever he be in Land Revenues, it is brought in unto him by the labours of inferior Tenants...And there is none of these inferiors, of ordinary discretion, but well knoweth, that what he enjoyeth, is by the favour of his Lord in a sort: and therefore ought there to be such a mutual concurrence of love and obedience in the one, and of aide and protection in the other, as no hard measure offered by the superior, should make a just breach of the loyalty of the inferiour: which kind of union is no ways better preserved and continued between the Lord and Tenants, then by the Lord's true knowledge of the particulars that every Tennant holdeth,...by a due, true and exact view and survey of the same...(the surveyor) but by industry and diligence, produce an exact discovery and performance of the work he undertaketh, to the true information of the Lord, whose benefit and uttermost lawful profit he is to seek," *John Norden's Surveyor's Dialogue*, 9.

Delegitimizing Custom

Norden's 1607 *Surveyor's Dialogue*, opens with an encounter between the surveyor and a tenant farmer. Only in such imaginary representations - and in the paternal concern for the tenantry expressed by elite critics of surveying - do we hear the voices of opposition to surveying from below. The dialogue is revealing. Upon discovering that he is speaking to a surveyor the tenant farmer says he "has heard much evil of thee profession."¹⁷⁴ The surveyor responds that this is an unjust opinion, if he has no experience of the profession itself. To this, the tenant farmer retorts:

My experience groweth by tasting of the evil that hath followed the execution of the thing ...and often times you are the cause that men lose their land. And sometimes they are abridged of such liberties as they have long held in Manners and customs are altered and broken... or taken away by your measurements; and above all you look into the values of men's lands whereby the Lords of manors doe rack their Tennants to a higher rent and rate than ever before...and therefore not only I but many poor Tennants else have good cause to speak against the profession.¹⁷⁵

But the surveyor turns the tables on the tenant farmer, aggressively suggesting that the tenants most critical of surveying are really just afraid of having their own treachery discovered: "they only spew out greatest scandals, that are by examination in this business found most deceitfull against their Lords... for the offender cannot speake well of the apprehender, nor scarcely of the most just Judge." He goes further, suggesting that, just as laws are needed to deter Beggars and Vagabonds, we need laws to prevent tenants from taking advantage of their Lord's property.¹⁷⁶

¹⁷⁴ Ibid, 15.

¹⁷⁵ Ibid, 16

¹⁷⁶ Ibid, 17. Vagrancy and begging had first been banned in Elizabethan England in 1572, under the "Act for the Punishment of Vagabonds, and for Relief of the Poor and Impotent." Those found begging, or away from their parish and without employment could be arrested and tried at quarter-sessions. According to Slack, the more definitive poor law acts of 1598 and 1601 sought to more efficiently stamp out vagrancy with "simplified penalties and procedures: parish

By equating commoners' use rights with theft or vagrancy, advocates such as Norden attempted to legitimize the surveying profession by delegitimizing the customary social arrangement. Thus, the defense of surveying, as exemplified in Norden's dialogue, was often two-pronged: spread doubt about the justice of the existing order and advocate for a deeper, preexisting justice, the divine order beneath the soil revealed by mathematical measurement. In response to the suspicions of measurement and to the charges that it is unjust, they drew on the mystical tradition of linking mathematical, geometrical order with the divine, in order to convince readers that, far from being new, metrology uncovers the "true" justice, beneath and prior to customary relations. Robert Recorde, for example, in his 1551 *The Pathway to Knowledge*, (speaking as the character 'Geometry') says "survayers have cause to make much of me and so have all Lordes that

officers could whip vagabonds and return them home; there was no need for quarter sessions to deal with every case." See Paul Slack, *The English Poor Law*, (Cambridge: Cambridge University Press, 1990) 10. Also see A.L. Biere's classic 1985 study of vagrancy in Tudor England, *Masterless Men*, cited above in footnote 22. As for laws "preventing tenants from taking advantage of the Lord's property," there were no such laws. Rather, for much of the sixteenth century, and in the beginning of the seventeenth century, it was the "copyhold" rights of tenants themselves that were protected by common law and the "prerogative" courts. However, according to Christopher Clay,

In the sixteenth and early seventeenth centuries, on manors all over the country, tenants who had thought they enjoyed the protection of custom had discovered that in law they were mere tenants-at-will. In some places, where the land was especially valuable, they had been evicted and their holdings enclosed and then re-let as large farms at much higher rent. Perhaps more commonly, after futile legal wrangling, they had been obliged to accept the new situation. They continued to occupy their lands, but as non-customary leaseholders they invariably had to pay more for them.

In fact, it seems that Norden was writing his Surveyor's Dialogue at the very time when the legal protection of copyhold, (the rights to land held by customary tenants and small-holders) was just beginning to be eroded. On the fate of copyhold, the changes to English land law in the seventeenth century and the quotation from Christopher Clay, see Charles J. Reid Jr, "The Seventeenth Century Revolution in Land Law," *Cleveland State Law Review* 43, no.2 (1995): 247-251. <http://engagedscholarship.csuohio.edu/clevstlrev/vol43/iss2/4>.

landes do possesse. . . . But Tennauntes I feare will like me the lesse. Yet do I not wrong but measure all truely, And yelde that full right to every man iustely/ Proportion Geometricall hath no man opprest/ If anye bee wronged, I wishe it redrest."¹⁷⁷ As Klein explains, "the tenants' mistrust of mathematical surveying is immediately disqualified by reference to geometrical impartiality"¹⁷⁸. Perhaps the best known advocate of geometry's inherent justice was John Dee, the mathematical mystic and astrologer to Queen Elizabeth. In his 1570 preface to Billingsley's English translation of Euclid's *Elements of Geometry*, Dee enthused over geometry as "[t]he perfect Science of Lines, Plaines, and Solides" and gives, "like a Divine Justicier, ... vnto every man, his owne."¹⁷⁹

Surveying manuals provided their readers, especially those in the surveying profession, with plenty of practical advice, including the most up to date measurements, tools and charts. But they were equally focused on persuading readers of the wisdom and propriety of adopting this new, objective standard of knowledge. And this persuasion was not only achieved through argument, or through fictional dialogues: depictions and descriptions of the surveyors instruments- the theodolite, the plane table, the compass, the ruler, and a host of ever more complicated innovations - were also essential tools of rhetoric. The frontispiece of Rathbourne's *The Surveyor*, for instance, displays a numbers of such tools, and centred at the top is the

¹⁷⁷ Robert Recorde (1551), "Preface," in *The Pathway to Knowledg [sic], Containing the First Principles of Geometrie*, (Amsterdam: Theatrum Orbis Terrarum, 1974) Quoted in McRae, "To Know One's Own," 345.

¹⁷⁸ Klein, "The Lie of the Land," 211.

¹⁷⁹John Dee (1570), *The Mathematicall Praeface to the Elements of Geometrie of Euclid of Megara*, Intro. by Allen G. Debus (New York: Science History Publications, 1975); quoted in Klein, "The Lie of the Land," 216. According to Peter J. French, Dee considered himself both a practical and mystical mathematician. See, Peter J. French, *John Dee: The World of an Elizabethan Magus*, (New York: Routledge, 1972), 104.

theodolite, being used by a surveyor (who happens to be trampling upon a fool- meant to signify the uneducated pretender to the profession).¹⁸⁰ According to Johnston, images of the instruments themselves served as the “material embodiment” of “claims to recognition and status,”¹⁸¹ and were “continuous with textual rhetoric of mathematical practice.”¹⁸²

Not only were spatial rationality and quantification morally defensible because they derived from universal abstract standards, but they were also the most certain foundation upon which claims of private ownership of land could be made. As McRae has demonstrated, the surveying discourse urged landlords to see it as their duty to “know their own.” Landownership could and should be “objectively determined in a manner which precluded competing or loosely defined customary claims”¹⁸³ Thus, surveying manuals did much more than to defend the scientific practices of a new profession. Their larger achievement was to disseminate a new conception land as exclusive property, along with a new conception of knowledge as legitimate only if it derived from the remote sphere of universal mathematical laws. In this way they helped to initiate the long process of unseating local and particular knowledge of the land, the standards, agreements and boundaries that had guided people on the ground.

The Discursive Power of Maps

In the seventeenth century, the success of surveying manuals in effecting a cultural acceptance of land as property was bolstered by the visual technology of the map. At the turn of the sixteenth

¹⁸⁰ Rathbourne, *The Surveyor*, frontispiece, also see Barber, 1644.

¹⁸¹ Johnston, “Mathematical Practitioners,” 325.

¹⁸² Johnston, *Making Mathematical Practice*, 38.

¹⁸³ McRae, 341.

century most Europeans had never seen a map of any kind.¹⁸⁴ A century later, this had begun to change.¹⁸⁵ Like the internet in the latter decades of the twentieth century, the new technology of scientific mapping first spread relatively slowly among a small section of experts and their patrons. Specifically, it was the agents of early modern states - their surveyors and cartographers- who first made use of the new mapping techniques in order to extend territorial power. It was not until the 1580s that this kind of mapping began to be incorporated into estate surveying practice at all. Moreover, for much of the seventeenth century estate maps were generally considered an ancillary element of the survey itself.¹⁸⁶ Nevertheless, while it was gradual and limited, the growing appetite for estate maps in the seventeenth century can tell us something about how space, property and knowledge were all being reimagined and newly represented in the early modern period.

I begin this section with a brief account of the emergence and dissemination of a new, scientific, approach to mapping over the sixteenth and early seventeenth centuries. Then, before turning to estate maps themselves, I discuss the relationship between maps and state power, particularly in Elizabethan and Jacobean England. The maps commissioned by the Crown in this period were generally prior to –and the larger political expression of- the estate map’s role in

¹⁸⁴ Bendall, 146

¹⁸⁵ Harvey has claimed that by 1600, maps “were familiar objects of everyday life”: “[t]he map as we understand it was effectively an invention of the sixteenth century.” See P.D.A. Harvey, *Maps in Tudor England* (Chicago: University of Chicago Press, 1993), 7-8. However, it seems unlikely that maps were an everyday object for the vast majority of English people by this date, especially as Bendall suggests that their use, even by landowners and surveyors, “spread slowly” at the beginning of the seventeenth century. See Bendall, “Maps, Land, and Society,” 146.

¹⁸⁶ Macrea, “To Know One’s Own,” 349, Woodward, “Cartography in the Renaissance,” 10.

constituting the power of the landlord as property owner.

First, I should clarify what I mean by calling this new approach to mapping “scientific.” Simply put, I mean that the maps that had begun to be produced in sixteenth century Europe were much closer to our understanding of what a map is today, than they were to the maps of the medieval period. Medieval maps, as I discussed briefly in an earlier section, contained a great deal of qualitative information. Geographic references were mixed together with historical, religious and symbolic content. In contrast, the new kind of mapping that developed in the sixteenth and seventeenth centuries was increasingly secular and shorn of temporal and allegorical elements. Cartographers began to use projection, measurement and scale, drawing upon geometrical knowledge and a conception of space as something that could be measured and represented objectively.¹⁸⁷ If some maps in this period continued to demonstrate a view of the world as made up of resemblances- with heavenly and earthly points made to correspond with one another-others expressed an emerging representational epistemology, wherein the image was self-consciously presented as an object of knowledge separate from, but constitutive of the object that it represented.¹⁸⁸ According to Woodward, the modern map, in which accumulated observations of the world are plotted onto a framework, serves as an apt metaphor for modern

¹⁸⁷ Woodward, “Cartography and the Renaissance,” 6.

¹⁸⁸ Foucault distinguishes between the “integrative” epistemology of the sixteenth century, wherein knowledge involved the interpretation of signs and the recognition of the corresponding relations between things, and a dispersive, differentiating epistemology emerging in the seventeenth century, in which signs had no content but their representation of known objects. See Michel Foucault, *The Order of Things: An Archeology of the Human Sciences*, (Vintage Books: New York, 1973); Chapters 2 and 3. For Woodward, what was new about the approach to mapping taken in both the sixteenth and seventeenth centuries was the recognition that these representations were the creations of cartographers, that is, they were understood to be distinct from the reality that they represented. See Woodward, “Cartography and the Renaissance,” 18.

science itself.¹⁸⁹

As we have seen above, Europeans had already been introduced to a new conception of space, and to new methods of representing that space, when Ptolemy's *Geography* was translated into Latin and Italian in the early fifteenth century. It was from Ptolemy that European cartographers first learned, as Brotton puts it, "to throw a net across the known world," a net "defined by the enduring abstract principles of geography and astronomy and the measurement of latitude and longitude." As noted previously, the same calculations which made it possible for Renaissance painters to represent three dimensional scenes on a flat surface also made it possible to represent the globe on a flat surface.¹⁹⁰

It was through Ptolemy's system that Europeans were first introduced to "Euclidean space," which Brotton describes as, "empty, homogenous, flat, uniform in all directions and reducible to a series of circles, triangles, parallels and perpendicular lines." This conception of space meant that "all terrestrial space, could, in theory, now be measured and defined according to enduring geometrical principles and projected onto a frame made up of a mathematical grid of lines and points that represented the world."¹⁹¹ As Harley notes, once European cartographers adopted this "Euclidean syntax" it thereafter "structured European territorial control."¹⁹²

¹⁸⁹ Woodward, "Cartography and the Renaissance," 17.

¹⁹⁰ Jerry Brotton, *History of the World in 12 Maps*, (New York: Viking Press, 2012), 46, 52.

¹⁹¹ Brotton, *History of the World*, 37-8.

¹⁹² Harley, "Maps, Power, and Knowledge" in D. Cosgrove and S. Daniels, eds, *The Iconography of Landscape*, (Cambridge: Cambridge University Press, 1988), 282

Although maps became more accessible with their increasing publication in the seventeenth century, mapping itself was not new, nor was its usefulness in maintaining and advancing territorial power.¹⁹³ According to Harley, mapping has always been the “science of princes.” In classical and medieval Europe, in ancient China and throughout the Islamic world, maps had been invaluable tools for bureaucratic, military, political or religious purposes.¹⁹⁴ In the early modern period, as in these earlier times, “maps anticipated empire. Surveyors marched alongside soldiers, initially mapping for reconnaissance, then for general information, and eventually as a tool of pacification, civilization, and exploitation in the defined colonies.” Just as important, maps served the rhetorical function of legitimizing empire.¹⁹⁵

Perhaps in part because it was first applied in the service of ruling powers, cartographic science itself had gained legitimacy by the turn of the seventeenth century. According to the historian of science, Westfall, cartography was transformed into a science through the innovations of a number of sixteenth century continental thinkers. Among the most important of these innovations were triangulation, the calculation of latitude according to celestial observation and of longitude according to Jupiter’s satellites. Westfall goes so far as to claim that “The most developed scientific technology during the 16th and 17th centuries... the first truly scientific technology, was cartography.”¹⁹⁶ For early modern Europeans themselves, wider recognition of

¹⁹³ According to Woodward, the production of maps proliferated exponentially with the technology of printing, increasing from “a few thousand between 1400 and 1472 to millions by 1600.” See Woodward, “Cartography in the Renaissance,” 20.

¹⁹⁴ Harley, *Maps, Knowledge and Power*,” 281-2.

¹⁹⁵ *Ibid*, 282

this cartographic science came with the publication of several key maps and texts in the late sixteenth century. In 1569, Dutch cartographer Gerardus Mercator published a world map which was a refinement of Ptolemy's method of transposing the spherical shape of the earth onto a flat plane.¹⁹⁷ And in 1570, the English public was given access to the geometrical foundation of cartographic science with Henry Billingsley's English translation of Euclid's *Elements of Geometry*. With this publication, D. K. Smith says, "the possibilities of mathematical calculation took on an increasingly central role in Elizabethan culture." In his introduction to this publication, John Dee rhapsodized about the new standard of knowledge made possible by geometry. All knowledge now rested on "the perfecte knowledge and instruction of the principles, groundes, and elements of geometrie." According to Smith, "as the influence of both Dee and Euclid spread, the objectivity of maps, their commensurability with both nature and truth, became a central tenet of their new and complex meaning."¹⁹⁸ That the reading public was receptive to the new science and its truth claims is suggested by the increasing use of words and phrases such as "modern," "new," "universal," "True description," "faithful," and "with the utmost accuracy," in map titles of the period.¹⁹⁹

¹⁹⁶ Westfall, quoted in Woodward, 22. Among the most important innovators, according to Westfall, were Gemma Frisius, Willebrord Snellius, Philippe de La Hire, Jean Picard, Jean-Dominique Cassini and Jacques Cassini.

¹⁹⁷ Edwin Danson, *Weighing the World: the Quest to Measure the Earth*, (Oxford: Oxford University Press, 2006), 11. Danson calls Mercator's projection the "first scientific method of map rendition."

¹⁹⁸ D K Smith, *The Cartographic Imagination in Early Modern England: Re-writing the World Re-Writing the World in Marlowe, Spenser, Raleigh and Marvell*, (Aldershot: Ashgate Publishing, 2008), 46-7. Other influential works of the period included Mercator's own edition of Ptolemy's *Geography* in 1578, and Christopher Saxton's *Atlas of England and Wales* in 1579. See Danson, *Weighing the World*, 13-14 and Woodward, "Cartography and the Renaissance," 17.

¹⁹⁹ Woodward, "Cartography and the Renaissance," 17.

Moreover, in England, by the turn of the seventeenth century, we see evidence that maps were becoming part of the wider consciousness in references to them in the work of Shakespeare, Donne, Marlowe and others- references which reveal an astute understanding of the immediate relationship between the knowledge objectified in maps and the viewer's ability to wield control over the represented space.²⁰⁰ In Marlowe's *Tamburlaine*, for instance, the protagonist says "Give me a map; then let me see how much is left for me to conquer all the world".²⁰¹

As cartography advanced as a science in the late sixteenth century, the map was increasingly "appropriated as an intellectual weapon of the state system."²⁰² The importance of maps to statecraft and to control of conquered territories was recognized by Queen Elizabeth. As early as 1567 she sent the surveyor and map maker Robert Lyeth to Ireland to "make the perfect description," for, "having all Ulster at her commandment and disposition" she "was verie desirous to have a true plot of the whole land, wherby she might in some sort see the same." ²⁰³ Lyeth's maps and documents translated Ireland - an inhabited place full of manifold local customs, into the abstractions of text and image.²⁰⁴ Composed by cold calculation, the "perfect description" and

²⁰⁰ Bendall, "Maps, Land and Society," 146.

²⁰¹ Christopher Marlowe, *Tamburlaine*, Part II (V.iii.123-39), quoted in J.B. Harley, "Maps, Knowledge and Power" in *The Iconography of Landscape: Essays on the Symbolic Representation, Design and Use of Past Environments*, eds. Denis Cosgrove and Stephen Daniels, (Cambridge: Cambridge University Press, 1988), 277.

²⁰² J.B. Harley, "Silences and Secrecy: the Hidden Agenda of Cartography in Early Modern Europe," *Imago Mundi*, 40 (1988), 59.

²⁰³ Tudor historian and civil administrator John Hooker, quoted in Klein, "The Lie of the Land," 207.

²⁰⁴ *Ibid*, 214.

“true plot” of Ireland could be replicated and transferred to the Queen, who, seeing it all in one glance, could more easily plan her strategy for conquest and settlement. The “objective” knowledge constituted in the making of the map and the survey, was the crucial precondition for exerting political control over a territory.

The map is therefore one of the key technologies that bind power and knowledge together in the modern state. It is not surprising then, that in the early modern period states strictly guarded their cartographic knowledge. As Harley explains, the secrecy with which states kept this knowledge gave rise to all kinds of 'intentional silences' on the map. “The map image itself was becoming increasingly subject to concealment, censorship, sometimes to abstraction or falsification.” Thus, the omissions of information on maps were not only passive, but very often strategic.²⁰⁵ Sometimes these omissions were “rooted in often hidden procedures or rules” that were intended to preserve the status quo.²⁰⁶ Harley identifies standardization as one such rule, which,

[w]ith its Euclidian emphasis on space as uniform and continuous, generates the silences of uniformity. For instance, in many of the topographical atlases of early modern Europe...much of the character and individuality of local places is absent ... Behind the facade of a few standard signs on these atlases, the outline of one town looks much the same as that of the next; the villages are more nearly identical and are arranged in a neat taxonomic hierarchy; woodland is aggregated into a few types; even rivers and streams become reduced into a mere token of reality; objects outside the surveyor's classification of 'reality' are excluded.²⁰⁷

Once maps were printed, this tendency towards standardization was even stronger: “map

²⁰⁵ Harley, “Silences and Secrecy,” 59.

²⁰⁶ *Ibid*, 57.

²⁰⁷ *Ibid*, 66.

images acquire[d] a tidiness and inevitability lacking in the manuscript age.” Achieved through the exclusion of the human, the local, and the particular, this tidiness facilitated the planning of interventions into the represented space, while also serving to “legitimize and neutralize” such actions.²⁰⁸

The ease with which a represented space could be viewed proprietorially from a distance, the erasure of the particular, inhabited character of the places represented on maps, and the legitimacy that standardized symbols and ‘objective’ measurement conferred upon the conquest of a territory, all served to reinforce and extend the power of the ruler who commissioned this new kind of map. These very same qualities were characteristic of the estate maps commissioned by seventeenth century English landowners, and likewise reinforced their power over property and in society.

Estate Maps

The maps produced by estate surveyors were not intended to stand alone, or to replace written surveys. Instead, they were seen as a supplementary component and visual expression of the surveyors’ work in measuring the land. But the spatial representation of what landlords owned, added a new dimension to the discourses of both private property and scientific knowledge in the early modern period. To view the layout of one’s land as if from above, and to see with ease its boundaries and its functions, was to see one’s ownership underscored and formalized.

Historians seem to agree that it was during the seventeenth century that it became more common for landowners to have maps, often referred to as ‘platts’ or ‘plots’, made of their estates.

²⁰⁸ Ibid, 66.

However, there is less agreement or certainty about exactly when in that century this change occurred and just how widespread the adoption of this technology was.²⁰⁹ While John Norden advised his readers to use maps to identify improvable wastes in 1607, he barely mentions maps in his book.²¹⁰ Bendall likewise suggests that "well into the seventeenth century" most landowners felt no need to have maps included in surveys of their estates. At the same time, she notes that the data on the production of estate maps between the seventeenth and nineteenth centuries "shows that it increased at a roughly exponential rate....as awareness of maps increased so more were produced."²¹¹ It appears, in any case, that it took some time for landowners to appreciate the practical benefits and the social and economic power constituted by and symbolized in the estate map.

What is clear, is that when landowners did have estate maps drawn up, there were a host of different reasons for doing so. In their earliest incarnations, estate maps were often initiated by the Crown, in order to settle property disputes that had come before the courts. According to Barber, many of the first estate maps in England were commissioned by corporate bodies such as hospitals and colleges, for whom, "prudence dictated that it was preferable to map estates comprehensively in advance than wait until an emergency compelled hasty action."²¹² The most

²⁰⁹ Kain points out that the supporting evidence of the use of rural estate maps in seventeenth century Europe is limited to didactic surveying texts such as Norden's, the maps themselves, and the documents that might accompany those maps. Without written documents corresponding to the maps, little can be discerned about the purpose of the surviving estate maps. See Kain, "Maps and Rural Land Management," 705.

²¹⁰ See Mark Netzloff *John Norden's Surveyor's Dialogue*, xvi-xvii, and John Norden himself on pages 25, 180.

²¹¹ Bendall, *Maps, Land and Society*, 145. 135

common sort of property dispute that the clarity of a map might resolve, involved “pretended or defended rights of pasture over land formerly considered common or waste,” especially as the boundaries of the latter were not well defined. In time, therefore, estate owners themselves had maps drawn up as a similar “prophylactic” against both litigation and claims to common rights.²¹³ A visual record of clear boundaries indicating ownership provided landowners with a formally recognized and legally certain claim to the land. Additionally, when one estate owner had maps commissioned with future litigation in mind, the owners of neighbouring estates often felt pressured to take the same preventative action.²¹⁴

In addition to the precautionary advantage of establishing of permanent record, estate maps were recommended as an important supplement to the written survey in helping landowners more precisely locate the boundaries, features and layout of their lands, and as a tool for facilitating their management.²¹⁵ By the seventeenth century the focus of rural land management had shifted away from maintaining the status quo and had become instead a series of proactive interventions in the land intended to augment its productivity and profitability. Surveying manuals thus advised landowners that along with accurate surveying, estate maps were an essential precondition for identifying necessary improvements, such as watering meadows, draining fens, or enclosing

²¹² Peter Eden, “Three Elizabethan Estate Surveyors: Peter Kempe, Thomas Clerke, and Thomas Langdon,” *English Map-Making, 1500–1650: Historical Essays*, ed. Sarah Tyacke (London: British Library, 1983), 77.

²¹³ McRae, “To Know One’s Own,” 349; Kain, “Maps and Rural Land Management,” 708.

²¹⁴ Barber, “Map Making in England,” 1642.

²¹⁵ Kain, “Maps and Rural Land Management.” 705. Kain notes that establishing a permanent record, locating property and facilitating land management were the three main advantages to the estate map according to the surveyor Ralph Agas in his 1596 textbook *A Preparative to Platting of Landes*.

wastes.²¹⁶ Agas, for example, encouraged his readers to use maps as an aid for envisioning their land and how it might be reorganized and improved.²¹⁷ And in his *English Improver Improved* (1649), Walter Blith advised landlords, “Plot out thy Land, into such a Modell or Platforme as thou mayst be sure that all thy Land thou designest to this Improvement, may not faile therein” and “Take a most exact Survey of thy Water, not by the Eye onely.”²¹⁸ Estate maps were thus conceived as essential tools in the new approach to estate management, which, according to Blomley, was increasingly “premised on the management of space, best realized through visual surveillance and organization.”²¹⁹

Estate maps also served an important role in reinforcing the social status of estate owners. In fact, estate maps were important objects in themselves, which, when displayed prominently in the owner’s home, communicated his high status to visitors and his command over the land to himself.²²⁰ Estate maps often included, along their borders, coats of arms and other emblems exhibiting the owner’s membership in an enduring family dynasty. But the estate map was itself, in Harley’s words, a “seigniorial emblem, asserting the lord of the manor’s legal power within the rural society. For him the map was one badge of his local authority”²²¹ Related to its role as an

²¹⁶ Ibid, 712-14.

²¹⁷ McRae, “To Know One’s Own,” 352.

²¹⁸ Blyth quoted in Kain, “Maps and Rural Land Management,” 712-13.

²¹⁹ Blomley, “Disentangling Property,” 18.

²²⁰ Barber, “Map Making in England,” 1662-3; Bendall, “Maps, Land and Society,” 146; McRae, “To Know One’s Own,” 349. Also see John Gregory, “Mapping Improvement; Reshaping Rural Landscapes in the Eighteenth Century” in *Landscapes*, 2005, 70.

²²¹ Harley, quoted in McRae, “To Know One’s Own,” 350.

object for display, the estate map was uniquely able to offer those who looked upon it a commanding view of the land. From such a view, according to Blomley, “[l]and becomes an object of distanced calculation.”²²² From Norden and Worsop to Leybourne and Lucar, surveying advocates touted the convenience for the landowner of having a comprehensive view of the estate while “sitting in his chair.”²²³ But it wasn’t just a matter of convenience. The technology of this commanding view from the seat of power inaugurated a new era in the relationship between landlord and tenants. The landlord, now able to view his estate from a distance, no longer needed to interact with the tenants at the level of the soil.²²⁴ Moreover, this distanced, comprehensive view of the land solidified the idea of total ownership, stimulating in the landowner a hunger to consolidate his lands so that the map would communicate his total control over the space it represented.²²⁵

Finally, just as in the atlases produced by nation states, the silences on estate maps formalized, through the epistemological authority of objective science, a very particular conception of the land. If national maps legitimized the territorialization of represented land, estate maps legitimized the idea of land as exclusive and private property. Meanwhile, evidence of the

²²² Blomley, “Disentangling Property,” 18.

²²³ The surveyor in Norden’s dialogue, for example, explains to a farmer that the map allows the Lord ““sitting in his chayre, [to] see what he hath, where and how it lyeth, and in whose use and occupation every particular is, upon the suddaine view”. Similarly, Worsop explains to the reader that with the map, the Lord, “sitting in his chayre at home, may justly knowe, how many miles his Manor is in circuite, and the circuit of any particular grounds, and wasts.” Both Norden and Worsop are quoted in Blomley, “Disentangling Property,” 18.

²²⁴ McRae, “To Know One’s Own,” 351; Barber, “Map Making in England,” 1622.

²²⁵ Gregory, “Mapping Improvement”, 66-7.

land's inhabitants - the dwellings of the labourers, the boundaries recognized and rehearsed by commoners from "time out of mind" - were not included on these maps. The customary social arrangement was easily erased, forgotten in the formal record of the estates.²²⁶ Wood, however, cautions us not to contribute to this erasure by overstating its extent. Estate maps, he argues, could not have been made without the cooperation of the land's inhabitants: "Much as lords may have wished that the men ...whom they appointed to map and survey their estates would produce documentation that did nothing more than validate their claims upon the land, the muddy, everyday nature of customary arrangements and collective opinion often produced rather more complicated readings of landscape and ownership." Rather than being produced in a simple top down manner, Wood contends that maps and surveys emerged from processes of contestation and negotiation with local inhabitants, whose first-hand knowledge of the land was indispensable to the surveyor. Thus, he suggests that "[w]e need, then, to look beneath the surface of the map...for the hard-edged confrontations and subtle negotiations that underwrote (its) production."²²⁷ However, as important as it is to recognize the agency of the inhabitants of estates in the production of maps and surveys, the very fact that we have to look beneath the map's surface to find evidence of that agency underscores the estate maps' role in excising from view "the muddy, everyday nature of customary arrangements."

We should remember that the emergence of new kinds of knowledge and property that I have recounted in this chapter did not entirely or suddenly displace all customary knowledge and uses of the land. The ritual of perambulation, for example, survived well into the age of capitalism.

²²⁶ E.P. Thompson, *Customs in Common: Studies in Traditional Popular Culture*, (New York: New Press, 1993).

²²⁷ Wood, "The Memory of the People," 272-3.

Instead, what I have tried to demonstrate here is the arrival, resistance to and increasing legitimization of these new ways of thinking about the world. There was a growing tendency in early modern England, to view space, land, and knowledge as objects of measurement. And, while estate maps themselves were not widely commissioned in this period, few cultural artifacts can better illustrate the modern perspective of the removed observer and its view of the world as an object of reform.

Conclusion

I introduced this chapter by conjuring the image of the unknown figure of the surveyor, arriving on the lands of the early modern estate. He may have been the object of suspicion and rancour, not only on the part of the inhabitants of those lands but also from the perspective of the moral and political authorities who witnessed and commented on the changes he represented. But I hope that what I have related in the discussion above may persuade the reader of the peculiar power inherent to the surveyor's status as an outsider. This is because the view from outside is distanced, removed from the obligations and attachments that embed the inhabitant in the particular context on the ground. In the early modern context, mathematical and geometrical knowledge melded with conceptions of divine order to creating a distanced, external perspective that could find the clear, clean lines beneath the soil, lines drawn by some universal source of order. Such a perspective afforded the viewer the power to see the land as an object, and this way of seeing was eventually divorced from the objective of uncovering a divine order. Once the dimensions of an object (like land) could be apprehended and represented according to a universal measurement, the reordering of that object could be more easily imagined. The surveyor's distanced view, encapsulated in the object of the estate map, is the view which became predominant in the European transition to modernity, and which cleared the ground for new planting.

I have described in this chapter the emergence of this view of the world as an improvable object in the late medieval changes to Christian cosmology and time consciousness. The growth of centralized and standardized legal institutions was itself a sort of mapping and surveying of a territory to be controlled. The objectification of the world in the Church and in law, and of thought in theology, science and philosophy, created a sense of greater human agency in the world and control over future outcomes. When this new vision of a contingent future produced anxiety and disorientation in a culture whose boundaries were losing clarity, abstract standards of quantitative thought were welcomed as a new framework through which to experience and navigate the world. In the Renaissance, the single point perspective adopted by painters and informed by Ptolemaic geometry, initiated a view of the world from the eyes of the removed observer. Once the witness of a sacred order, the perspective of divine providence was now transferred to secular rulers and other powerful humans. By the seventeenth century the objective knowledge grasped and represented by quantification and visuality had itself become the order of the European world.

In the context of the early modern English estate, surveying and mapping prepared the ground for reform, by removing from view customary knowledge of and claims to the land. A new and objective knowledge legitimized the transformation of land into private property. Suspicion of and moral opposition to surveying and mapping were answered with the claim that mathematical and geometrical laws were universal and thus revealed the truer justice underlying customary uses and knowledge of land. The formalization of this view of land as property invited its reorganization and lent legitimacy to the nascent discourse of improvement.

Chapter Three

Enclosing and Improving in England's Transition to Modernity

If you are an English speaker who was raised as a Christian the odds are that you first came across the word “to trespass” when you were taught to recite the Lord’s Prayer. It was something you asked God to forgive you for- and something you forgave others for if they did it against you. Since it required forgiveness, you probably understood that it had something to do with sinning- with hurting other people. Only later, wandering around wherever it was you lived, would you see the word in a different context; on a sign affixed to a fence or a building, reading something along the lines of: “private property: trespassers will be prosecuted.” You would have understood then that trespassing had something to do with entering a space you weren’t supposed to. And you might then have begun to do something that it took hundreds of years for Western societies to learn to do: to consider as a sin the crossing of the boundaries of private property.

In both contexts, to trespass means to pass over the boundary marking proper behavior: the first boundary divides neighbourly from anti-social behavior while the second divides legal from illegal occupation of a space. But when modernity and private property were young this second kind of boundary- the enclosure- was widely considered a form of trespass against the first. That is, to claim a realm as belonging only to yourself and to exclude others from it was widely considered a sin against community and God.

Boundaries marking “proper” behavior may be built with bricks or wood or barbed wire, but they will not stand for any amount of time without a substantial social belief in their validity. In this chapter I want to explore how the boundary of enclosure – widely censured in early modern England- came to be seen as morally and legally valid by the seventeenth and eighteenth centuries. To this end, I present the story of enclosures chronologically, from its early use as a means of

adjusting to a shortage of labour in the fourteenth and fifteenth centuries, to its employment as practical tool for estate management in the sixteenth century and finally to its role in facilitating agrarian improvement and capital accumulation from the seventeenth century on.

While it remains crucial that we continue to ask how and when private property became “proper”, in order to historicize what continues to be taken for granted as natural, that is not my chief purpose here. The history of enclosures and the extinguishment of common right has already been related most powerfully in the works of Karl Marx, Karl Polanyi, E.P. Thompson, Jeannette Neeson and others.¹ This history involves the dispossession of the commoners, their separation from the means of subsistence and subsequent dependence on wage labour, a “primitive

¹ One of the first cases to attract Marx to the study of economics, was the experience of Moselle peasantry in Germany in 1842, when the Law of the Theft of Wood was first enacted. These laws criminalized what had been customary rights to collect wood in the forest. He criticized these laws in a series of articles for the *Rheinische Zeitung*. See Karl Marx, “Debates on the Law of the Theft of Wood,” *Rheinische Zeitung* 298, no. 303 (1842):1. <http://www.marxists.org/archive/marx/works/1840/rhe-zeit/1842wood.htm>. For a recent and detailed discussion of this case and Marx’s articles see Peter Linebaugh “Karl Marx, the Theft of Wood, and Working-Class Composition: A Contribution to the Current Debate,” *Social Justice* 40, nos. 1–2 (2014): 137. For Marx’s discussions of the English Enclosure movement and his theory of primitive accumulation see, Karl Marx and Frederick Engels (1859) *Collected Works, Volume 1* (New York: International Publishers, 1975); *A Contribution to the Critique of Political Economy*, translated by N.I. Stone, (Chicago: Charles Kerr, 1904); and (1867) *Capital: A Critique of Political Economy, Volume One*, translated by Ben Fowkes, introduced by Ernest Mandel (London: Penguin, 1990). Also see Polanyi’s account of the dispossession of commoners and the commodification of land, labour and money in Karl Polanyi (1944) *The Great Transformation: The Political and Economic Origins of Our Time*, introduction by R. M. MacIver (Boston: Beacon Press, 1957). For her theory on the origins of capitalism in early modern changes to England’s agrarian property relations, and on the role of enclosures see Ellen Meiksins Wood, *The Origin of Capitalism: A Longer View*, (London: Verso, 2002). For their ground-breaking social histories of the commoning economy and of enclosure movements from the perspective of the commoners, see E.P. Thompson, *Customs in Common* (New York: The New Press, 1991), and Jeannette Neeson, *Commoners: Common Right, Enclosure, and Social Change in England, 1700–1820* (Cambridge: Cambridge University Press, 1993).

accumulation” which “cleared the ground”, so to speak, for the capitalist mode of production and the imposition of new property relations in England and across the globe. While none of these events is absent from this chapter, my focus is on something else that enclosures might be and might mean. That is, my larger purpose in recounting key moments in the story of enclosures is to reflect on the nature of boundaries –and their trespass- in the constitution of modernity.

My account thus diverges from other accounts of enclosure in two ways. First, I see enclosure as not only a crucial event in the history of capitalism, one whose social and material consequences continue to unfold to this day, but also as a powerful metaphor for a logic of containment which is a recurrent feature of modernity. Considered in this light it is impossible to ignore any longer the intimate relation between the containing impulse of enclosure and the expansive impulse apparent in the discourse of improvement, an impulse which is equally characteristic of modernity. The territorial expansion of European powers throughout the history of colonialism is one of the clearest manifestations of this impulse. The colonialist project was concurrent with the development of modernity and was intricately linked with the rise of both the modern state and capitalism, particularly with regard to the accumulation of wealth and the theoretical and practical development of private property. While I do address colonialism at some points in this chapter, my primary focus here is on the expansive impulse evident in the discourses of both agriculture improvement and the acquisition of knowledge in seventeenth and eighteenth century England. Secondly, my account of enclosure alternates between describing the enclosure and improvement of land-as-property and the enclosure and improvement of knowledge in order to demonstrate how the reorganization of property relations took place in relation to a reorganization of knowledge. Both of these processes are part of a larger transformation – the turn to the modern view of the world as an object of reform.

In the opening section I recount the early meanings and manifestations of enclosure and improvement in the Tudor period. While both were features of a developing discourse on practical estate management, many sixteenth century enclosures involved the large scale conversion of arable to pasture land. Because of the dramatic effect such enclosures had on rural populations they were widely condemned by Tudor authorities and commoners themselves. Next, I look at the early years of the seventeenth century, when a more ambitious understanding of improvement features in Francis Bacon's 1620 work, *The Great Instauration*. Bacon's plan to rebuild the human understanding of nature was founded on a logic of enclosure and oriented towards endless improvement: the determination of natural facts would act as stepping stones in an ongoing progression towards greater certainty. At the same time, an early and defensive discourse of improvement developed in response to the continued resistance of commoners as well as some elites to the material effects of enclosures.

The third section recounts the elaboration and expansion of the improvement discourse in seventeenth century England. As Bacon's successors in the Hartlib circle and the Royal Society pursued projects for social and scientific reform, belief in the possibility of endless progress infused the culture and began to intersect with a growing sense of English nationalism, and the political and economic ambitions of the state at home and abroad. In the fourth section I explore the turn to a more aggressive discourse of improvement from the mid seventeenth century on, when agricultural improvement was wedded to national and imperial ambitions and to notions of providential design. The imperative of improvement was increasingly articulated in opposition to dangerous waste lands and corrupt commons. Finally, the last section describes the further entrenchment of the logics of enclosure and improvement in the eighteenth century. Against the continued resistance to enclosure and the robust defense of common rights, these logics are

legitimized in property theories, enforced through the Parliamentary Acts and naturalized in the landscaped gardens of large estates. I close this section and the chapter with an account of the unforeseen effects of Linnaean classification to illustrate how the accumulative and enclosing logics of modernity produce ever more ambivalence and instability.

My argument draws primarily upon two areas of scholarly literature: historical work which places the origins of capitalism in the changes to property relations in England between the seventeenth and eighteenth centuries, and theories of modernity which assert the peculiar role of boundaries in the development of modernity. As I have already given a brief outline of the first of these areas of scholarship, I will now turn to the second.

Modernity as Boundary Making and Boundary Breaking

Together, the erection and crossing of boundaries form a central dynamic of modernity. I choose the word dynamic here advisedly, for I am not speaking of a historical dialectic in any formal Marxist sense, but simply identifying a pattern in modernity in which contradictory tendencies are exhibited simultaneously, and appear to progress in tandem, possibly out the interdependence of their relationship to one another. There are a number of such paired countertendencies evident in modernity, such as social integration and fragmentation, or individualization and the growth and centralization of governments. What may link all of these contradictions, and what is certainly pertinent to the modern tendencies to both circumscribe and transgress new boundaries is the indeterminacy of the future in modernity. As I have already discussed in the introduction and the first chapter, the transition to modernity in Europe involved a shift away from a world in which time belonged to the divinely circumscribed realm of the secular world, towards one in which the future was perceived as open and contingent upon human action. It is my contention that adjusting

to the uncertainty of this open-ended future may have stimulated the assertion of limits and boundaries in new ways, so that certainty and stability could ground the radical freedom of open-endedness.

While the theorists of modernity that I draw on do not necessarily use the terms “boundary” or its “trespass” to express this dynamic, their own metaphors illustrate comparable qualities of order, orientation and security on the one hand, and transcendence or growth on the other. In *A Theory of Modernity*, for instance, Agnes Heller describes the modern dynamic as arising from its paradoxical foundation of freedom. That is, the modern impulse to freedom transgresses and invalidates the traditional foundations by which people orient themselves in the world. But in delegitimizing its foundation freedom itself becomes groundlessness. The conditions arising from acts of freedom create new conditions of disorientation requiring new acts of foundation building. A new form of legitimation or direction (of truth and of authority) is thus constructed, but it cannot remain. The impulse to freedom, once set in motion, continues as the unstable foundation of modernity.²

In Bauman’s *Modernity and Ambivalence*, it is the escape from the past that orients the modern subject forwards. Rootless, we move in an “obsessive march forward” towards a continually receding horizon. The future is “open” as Kosselleck and Luhmann put it, but it is never arrived at. The march towards this horizon provides us with what meaning we have- a pursuit of meaning never satisfied. For Bauman and Heller, modernity’s restless dynamic is derived from both the receding horizon and the impermanence of the ground. To move forward is an act of freedom from the constraints of the previous foundation. But a direction is needed, so a new kind

² Agnes Heller, *A Theory of Modernity* (Malden, Mass: Blackwell, 1999), 15.

of foundation constructed, only for it too to be transcended as the forward march continues.³ For Bauman too, the impulse to define boundaries between the things of this world can never be realized with the desired precision. Ambivalence always returns. A sense of disturbance, impurity and loss of control follows, spurring renewed efforts at categorization.

Finally, the horizon was also a favoured metaphor of Nietzsche's. In "The Uses and Disadvantages of History for Life," for instance, he stresses the need to cultivate "the art and power of forgetting" as a way of "enclosing oneself within a bounded horizon." Without this boundary the weight of the past is paralysing. In a similar vein, he warned that, without constructing some sort of enveloping atmosphere for oneself, the absence of meaning and direction in modern life simply inhibits growth.⁴

Each of these theories identify in modernity an impulse to grow or to move forward. But the impermanence of boundaries in modernity divests this growth and movement of meaning and direction. Modernity's triumph of transcending boundaries is always accompanied by a terror of the infinite. Growth thus requires a delimiting of options and directions. Inherent to modernity therefore, is this dynamic interaction between freedom and security, between the impulse to expand and advance into the future and the need for the protection offered by some sort of enclosing framework. Below, I present evidence that illustrates just such a dynamic in England's

³ Zygmunt Bauman, *Modernity and Ambivalence*, (Ithaca, New York: Cornell University Press, 1991) and *Liquid Modernity*, (Cambridge: Polity Press, 2000), 10-11.

⁴ Friedrich Nietzsche, (1873), "The Uses and Disadvantages of History for Life" in *Untimely Meditations*, ed. Daniel Breazeale, trans. by R.J. Hollingdale (Cambridge: Cambridge University Press, 1997), 63-4.

transition to modernity. From the late sixteenth to the late eighteenth centuries, as the traditional boundaries shaping that society eroded the discourse of improvement was always accompanied by various practices of enclosure, both on the land and in the methods and categories of knowledge.

Enclosure and Improvement in the Tudor period

Early Enclosures

The enclosure movement played a crucial role in the transition to a capitalist conception and system of property. It was far more than the fencing off of an area of land, or the boundary itself. Instead, most historians understand it as a process, by which one set of relations between people and land is gradually replaced by another. Specifically, as Blomley defines it, this was the process of converting “commonable lands, whether on wastes, commons, or village fields, into exclusively owned parcels, and the concomitant extinction of common rights.”⁵ This loss of common rights was essential to the development of capitalism because it blocked off of access to resources for survival and pressed the dispossessed population into wage labour.⁶ But the completion of the transition from a complex network of customary rights to land, to the fungible, and absolute form of private property took centuries.⁷

⁵ Nicholas Blomley, “Making Private Property: Enclosure, Common Right and the Work of Hedges” in *Rural History* 18, no. 1 (2007): 2.

⁶ For comprehensive accounts of how English commoners were dispossessed and disciplined into capitalist labour please see E.P. Thompson, *Customs in Common* (New York: The New Press, 1991); J.M. Neeson *Commoners: Common Right, Enclosure, and Social Change in England, 1700–1820* (Cambridge: Cambridge University Press, 1993) and Karl Polanyi (1944). *The Great Transformation: The Political and Economic Origins of Our Time*. Introduction by R. M. MacIver (Boston: Beacon Press, 1957).

⁷ Getzler, Joshua. “Theories of Property and Economic Development” *Journal of Interdisciplinary History* 26, no. 4 (Spring, 1996): 643-7.

When we refer to this process as the “enclosure movement” we are being somewhat misleading, since there were not one, but two, quite distinct enclosure movements in British history. The first such movement –when the customary practice of enclosures was first altered in character- took place in the early Tudor period. The second enclosure movement, “parliamentary enclosures,” didn’t occur until the mid-eighteenth century and lasted into roughly the mid-nineteenth century. During this period, special Acts of Parliament permitted landowners to enclose without the consent of affected parties.⁸ The massive cultural and economic transition which spanned the centuries between the two movements can also be divided into two periods. First, between the mid-sixteenth and mid-seventeenth centuries, members of the elite who had been suspicious and disapproving of the new profit-oriented approach to enclosure were gradually won over by the proliferation of a defensive literature espousing its practical benefits to agriculture, estate management and the national economy. Then, from the mid-seventeenth century, the defensive tone of the improvement discourse gave way to a more aggressive tone, claiming the moral and national imperative of enclosures. By the time of parliamentary enclosures the moral legitimacy of enclosures had been firmly established in the culture of the upper classes. The private and exclusive nature of enclosed property was redefined in legal, moral and political thought as natural and as divinely sanctioned.⁹

⁸ Of course, this is not to suggest that the enclosures only took place during these two periods, for, after the sixteenth century they were a fairly regular agricultural practice in England, their frequency tending to increase in periods of dearth and crisis and to decline at other times. Thus, in a sense it is accurate to think of the process of enclosure as one continuous movement - from common right to private property- taking place over a period of at least three centuries. I focus on the Tudor and Parliamentary enclosures as *two* movements because the cultural and socio economic impact of enclosures was most remarkable during these periods.

⁹ William Blackstone, for example, argued that private property was sanctioned by natural law. See William Blackstone, (1766) *The Oxford Edition of Blackstone’s Commentaries on the*

The origins of enclosures, however, were eminently practical, and often protective in nature. In the fourteenth and fifteenth centuries they were used in response to the devastation of populations across Europe by the Black Death. In England, landowners mitigated the problem of severe shortages of labour by engrossing and enclosing larger tracts of land.¹⁰ Later, in the reigns of King Henry VII, and King Henry VIII, enclosures of another kind appeared, involving the conversion of crop land into pasture, primarily for the grazing of sheep. The resulting displacement of those who had lived and worked on the crop land was the cause of Thomas More's famous complaint that the sheep "may be said now to devour men."¹¹ The Tudor enclosure movement also involved the dissolution of the monasteries by Henry VIII, and the Crown's appropriation of Church land.¹²

Laws of England: Book II: of the Rights of Things, ed. Simon Stern (Oxford: Oxford University Press, 2016). Other legal theorists defending private property on the basis of natural law included Grotius, Pufendorf, Locke, Kant and Hegel. See Getzler, "Theories of Property," 641. I discuss both Blackstone and Locke's ideas about the origins of property rights in the section of this chapter entitled "Legal and Historical Justifications of Private Property."

¹⁰ Keith Wrightson, *Earthly Necessities: Economic Lives in Early Modern Britain*, (New Haven: Yale University Press, 2002), 99-100; and Roger J.P. Kain, "Maps and Rural Land Management in Early Modern Europe" in *The History of Cartography: Vol. 3: Cartography in the European Renaissance*, Ed. David Woodward, (Chicago, University of Chicago Press, 2007), 706. <http://www.press.uchicago.edu/books/HOC/>

¹¹ "The increase in pasture... by which your sheep, which are naturally mild, and easily kept in order, may be said now to devour men and unpeople, not only villages, but towns; for wherever it is found that the sheep of any soil yield a softer and richer wool than ordinary, there the nobility and gentry, and even those holy men, the abbots not contented with the old rents which their farms yielded, nor thinking it enough that they, living at their ease, do no good to the public, resolve to do it hurt instead of good. They stop the course of agriculture, destroying houses and towns, reserving only the churches, and enclose grounds that they may lodge their sheep in them." See Thomas More, (1515) *Utopia*, available at <https://www.marxists.org/reference/archive/more/works/utopia/index.html>

¹² Charles J. Reid Jr. "The Seventeenth-Century Revolution in the English Land Law," *Cleveland State Law Review* 43, no.2 (1995): 237-8; 253. Available at <http://engagedscholarship.csuohio.edu/clevstlrev/vol43/iss2/4>

Because engrossment and enclosure had been established rural practices for centuries, these early to mid-sixteenth century enclosures were not perceived as being entirely anomalous.¹³ What was new and threatening, however, was their deployment on a larger scale and at a faster pace, and, increasingly, their erection across areas customarily accessible by common right.¹⁴ From the middle of the century a new rationale for enclosures began to emerge, one that was at odds with the customary approach to land use.¹⁵ But, as we have discussed in the previous chapter, often the first visible sign of changes to come was the appearance of surveyors on the manorial lands, measuring and evaluating those lands with strange instruments and according to unknown

¹³ Joan Thirsk describes the difference between enclosing and engrossing: “to enclose land was to extinguish common rights over it, thus putting an end to all common grazing.” This was usually put into effect by erecting a hedge or a fence. Meanwhile, to make it worthwhile, “enclosure was often preceded by the amalgamation of several strips by exchange or purchase.” Engrossing, on the other hand, “signified the amalgamation of two or more farms into one.” Thirsk notes that both engrossing and enclosing were “frequently referred to in the same breath as twin evils in the countryside but they did not inevitably accompany one another.” Nevertheless, she says, they did both cause depopulation. See Joan Thirsk, “Enclosing and Engrossing” in *The Agrarian History of England and Wales: 1500-1640, Vol. 4*. ed. Joan Thirsk and H.P.R. Finberg, (Cambridge: Cambridge University Press, 1967), 54-55.

¹⁴ Blomley, “Making Private Property,” 2.

¹⁵ McRae notes that the seeds of this rationale can be found as early as 1520s, in Fitzherbert *Boke of Surveying*. He explains that Fitzherbert’s use of the terms surveying and improvement connoted something quite different from their later use: the “administration of the court of survey” involved at this time the “examin(ing) (of) records or tenure and receiv(ing) tenants for their performance of homage and fealty.” Nevertheless, he also suggests that *The Boke of Surveying* “documents the tentative development of a distinctly new discourse of surveying” associated with “new standards of information regarding the size and legal basis of landholdings” and that these new standards of knowledge facilitate an economic valuation of land. McRae, “To Know One’s Own,” 336; 339. Warde also notes that Fitzherbert counselled his readers to use enclosures in order to increase profits, however, he reminds us that the new concern for the economic value of land in the sixteenth century did not yet amount to a desire for an extensive agricultural transformation. Rather, for most of the sixteenth century enclosures were seen as one tool among many in the prudent management of estates. See Paul Warde, “The Idea of Improvement: c.1520-1700” in *Custom, Improvement and the Landscape in Early Modern Britain*, ed. Richard Hoyle, (Ashgate: England, 2011) 130-131.

standards.

Widespread Disapproval of Enclosures in the Tudor Period

It was in the surveying manuals of the sixteenth century that enclosures were first advocated as a means to more efficient management of estates. A heightened interest in estate management followed the influx of continental literature on the subject.¹⁶ The incentive to have one's land measured by surveyors, expressed visually in a map, and ultimately, to have its perimeters marked or made impenetrable, was that rents could be raised on the newly valued land, and revenues increased. It seems that, in the early to mid-sixteenth century, it was often the Crown that was concerned with extracting revenues, and which therefore mobilized surveys.¹⁷

As Andrew McRae notes, however, the emergence of a new attitude to property in land could be found throughout sixteenth century surveying manuals which frequently counseled landlords to "know one's own." McRae argues that this phrase,

assumes a social and economic order in which rights to the land can clearly and objectively be determined, in a manner which precludes competing or loosely defined customary claims. Landownership is thus figured as reducible to facts and figures, a conception which inevitably undermines the matrix of duties and responsibilities which had previously been seen to define the manorial community. In the perception of the surveyor, the land is defined as property, as the landlord's "own".¹⁸

In reality, it would be centuries before ownership of property would be absolute in the sense that we understand it today. The legal triumph of enclosures over commons, and of private

¹⁶ According to Warde, the English translations of Claude Estienne's *La Maison Rustique* in 1554 and Conrad von Heresbach's *Four Books of Husbandry* in 1577 were two popular Continental manuals for estate management, and examples of "Hausvaterliterature." See Warde, "The Idea of Improvement," 130.

¹⁷ Warde, "The Idea of Improvement," 129, 132-3.

¹⁸ McRae, 341.

and exclusive ownership over a complex of use rights, took many centuries.¹⁹ Nevertheless, the spread of enclosure did signify a shift towards a new idea of land as property, and of property as a bounded, territorialized space.²⁰

What really distinguishes the Tudor enclosure movement from its parliamentary counterpart was its often illicit status and the widespread condemnation with which the practice was received outside of a small circle of agricultural innovators. Ironically, though enclosures were once used as a solution to the problem of depopulation, they were now understood to be a cause of depopulating villages.²¹ Enclosures which either converted arable land to pasture, or blocked

¹⁹ Getzler, “Theories of Property and Economic Development,” 643-4. Some feudal remnants have not yet been fully eliminated from British land law. See for example, Lancaster University law professors Ben Mayfield and Lu Xu argue that “It’s time we let the feudal leftover of leasehold ownership expire.” See Ben Mayfield and Lu Xu, *The Conversation*, January 24, 2018, <http://theconversation.com/its-time-we-let-the-feudal-leftover-of-leasehold-ownership-expire-90406>. Also see Charles Harpum, “Does Feudalism Have a Role in 21st Century Land Law?” *Amicus Curiae*, no. 23 (January 2000): 21-25.

²⁰ Blomley “Making Private Property,”⁴ and “Disentangling Property, Making Space,” 33. See also Nicholas Blomley, “The Territorialization of Property in Land: Space, Power and Practice,” *Territory, Politics, Governance* (2017): 1-17; Jim A. Bennett, “Geometry and Surveying in Early Seventeenth Century England,” *Annals of Science* 48, no. 4 (1991): 345; and Andrew McRae, *God Speed the Plough: the Representation of Agrarian England, 1500-1660* (Cambridge: Cambridge Books, 1996). It should be noted that there is a major qualitative difference between land as territory - property as the exclusive occupation of a measured space – and land as a place which is inhabited. The shift toward a spatial conception of both land and property began with the geometric measurements and maps used by surveyors, as I demonstrated in the previous chapter. This spatial conception of land was further extended with the development of chorography and topography in the seventeenth century, and geography in the eighteenth. See, Chenxi Tang, *The Geographic Imagination of Modernity: Geography, Literature, and Philosophy in German Romanticism* (Stanford: Stanford University Press, 2008).

²¹ Bill Shannon, “Approvement and Improvement in the Lowland Wastes of Early Modern Lancashire,” *Custom, Improvement and the Landscape in Early Modern Britain*, Ed. Richard, W. Hoyle, (Farnham: Ashgate, 2011), 178.

access to common grazing land and a host of other customary rights, eliminated a major source of commoner's resources for survival, pushing them out of their villages in search of a livelihood elsewhere.

Some elites, such as clergymen, deplored enclosures because they so clearly undermined the fabric of community life, and by extension, the social order itself. Moreover, the abandonment of social responsibility in the pursuit of personal profit was judged to be a major transgression of Christian morality. Among those who voiced such complaints were what Juliet Amy Ingram calls the "commonwealthsmen", a group of evangelical protestant preachers and pamphleteers for whom religious and social reform were linked.²² The sermons and protest literature of Robert Crowley, Hugh Latimer, Thomas Lever and Thomas Becon did not fall on deaf ears. Indeed, early in Edward VI's reign, they had a powerful ally in the Lord Protectorate Edward Seymour- the Duke of Somerset after 1547. It was Somerset who opened the enclosure commissions of 1547 and 48. Meanwhile, Hugh Latimer often preached before the King himself. In fact, Latimer gave substantial attention to the subject in his first Sermon:

You landlords, you rent-raisers, I may say you steplords, you unnaturall lordes, you have for your possessions yearly too much. For what herebefore went for xx or xl pound by year, (which is an honest portion to be had gratis in one Lordeship, of another man's sweat and labour) now is let for L (fifty) or a C (hundred) pound by year. Of this too much commeth. This monstrous and portentious dearth- is made by man, ...which these riche men have, causeth such dearth, that poor men (which live off their labour) cannot with the sweat of their face have a living,these grasiers, inclosers, and rente-raisers, are hinderers of the kings honour. For whereas have been a great many of householder and inhabitants, there is now but a shepherd and his dog, ...But let the preacher preach till his tongue be worn to the stumps, nothing is amended. We have good statutes made for the common wealth as touching commoners, enclosers, many meetings and Sessions, but in the end of the matter

²² Juliet Amy Ingram, "The Conscience of the Community: The Character and Development of Clerical Complaint in Early Modern England" (PhD diss., University of Warwick, 2004) 7.

their commeth nothing forth.²³

For other elite critics, however, the depopulating effects of enclosures were problematic for political reasons. By swelling the ranks of the landless, - a necessarily unstable population which wandered the countryside and entered the cities- enclosures exacerbated the vagrant problem. In a society undergoing massive social and cultural change, vagrancy was a favourite target of blame, often cast as both a disease and a form of sedition that was spreading throughout the body of the commonwealth. The fear that this sedition and disease would spread up to the head of the body- the King- was so great that vagrants were demonized, and punished severely for their presence outside of their own parishes.²⁴

The Crown was sufficiently concerned about the problem of depopulation to hold two “inquisitions” on the problem: The first in 1517 and the second, in 1607.²⁵ Furthermore, in periods of dearth, when food and employment were in short supply, popular protest against enclosures was forceful enough to compel Tudor authorities to prohibit the practice. In fact, enclosures of waste grounds had been permitted since the Merton Acts of the thirteenth century. But with the prevalence in the mid sixteenth century of enclosures for the conversion of arable land to grazing land, tenants, feeling that their livelihoods were under threat, grew more aggrieved. In response to their complaints that tillage was in decline and their commons overrun with large flocks of the landlord’s sheep, Lord Protector Edward Seymour, Duke of Somerset, made a proclamation

²³ Hugh Latimer, (1549) “Seven Sermons Before Edward VI, on Each Friday in Lent,” *Selected Sermons of Hugh Latimer*, ed. Allen G. Chester, (Associated University Press, 1978) 65.

²⁴ A.L. Beier. *Masterless Men: The Vagrancy Problem in England 1560-1640* (London and New York: Methuen Press, 1985), 10; 141.

²⁵ Edwin F. Gay, “The Midland Revolt and the Inquisitions of Depopulation of 1607,” in *Transactions in the Royal Historical Society* 18 (1904): 231-4. <http://dx.doi.org/10.2307/3678075>

against enclosures and in 1547-1548 sent out a commission to investigate their grievances, led by the reformer MP. John Hale.²⁶

Apparently many commoners interpreted the instigation of the enclosure commissions and the anti-enclosure rhetoric of Somerset and other powerful men, as a confirmation of the illegality of enclosures, and thus felt encouraged in their protests. Some of Somerset's fellow members of the court even felt that it was he, rather than the poor harvest of 1548, who was ultimately responsible for the Ketts' rebellion of 1549.²⁷ Robert Kett, for whom the Norwich rebellion has been named, was actually a prosperous yeoman tanner, who took up the cause against landlords enclosing common grazing land when his own enclosing fences were broken by rebels from neighbouring Attleborough. In sympathy with their cause he led the group to the common land of Mousehold Heath, where the rebels established and held a camp until they were finally defeated by a large contingent of the Royal army in late August.²⁸ Kett's rebellion was just one of several popular uprisings against enclosure in Southern England in the spring and summer of 1549.²⁹

According to Bill Shannon, it was in response to these popular uprisings that the centuries

²⁶ Andy Wood, "Kett's Rebellion in Norwich," in *The History of Norwich* ed. C. Rawcliffe and R.G. Wilson (Hambleton: London, 2004), 12; Jim Holstun, "Utopia Pre-Empted: Kett's Rebellion, Commoning, and the Hysterical Sublime," *Historical Materialism* 16 (2008): 5-6.

²⁷ Holstun, "Utopia Pre-Empted," 7; Gay, "The Midland Revolt," 35.

²⁸ Wood, "Kett's Rebellion", 6. For more on Kett's Rebellion see Andy Wood, *Riot, Rebellion and Popular Politics in Early Modern England* (London: Palgrave, 2002); and Anthony Fletcher and Diarmaid MacCulloch, *Tudor Rebellions: Revised 5th Edition* (Abingdon, UK: Routledge, 2014).

²⁹ Wood, "Kett's Rebellion," 14. Also see Diarmaid MacCulloch, "Kett's Rebellion in Context" *Past & Present* 84, no.1, (1979), 39-40; and Jane Whittle, "Lords and Tenants in Kett's Rebellion 1549" *Past & Present* 207, no.1 (2010), 3.

old statute of Merton (1235), and the second statute of Westminster (1285), which condoned the enclosure of waste land for the purpose of turning it to arable land, were re-enacted in 1549 as “an act concerning the improvements of moors and waste grounds.” Rather than repealing Merton, the new act simply “increased the penalties for breaching it, and added some new clauses.”³⁰ It seems that the 1549 act was intended to channel enclosure activity towards the somewhat more popularly palatable conversion of waste lands to arable land. Nevertheless, this reiteration of the legality of enclosing waste lands was personally advantageous for a number of the men who were assigned by the House of Lords to read the Bill for ‘approving’ (legally allowing for the enclosure of) commons and waste grounds.³¹

If a certain zeal for enclosures was detectable in gentry circles, anti-enclosure legislation continued nevertheless. According to Maurice Beresford, the first Act against enclosure was in 1489, and in the 150 years that followed “there would be a further eleven acts of Parliament and eight Commissions of Enquiry on the subject”.³² Not all of the Acts banned enclosures outright. Some simply demanded that compensation for the destruction of buildings be paid, or that “half the profits from conversion would go to the Crown until the arable land was restored.”³³

In spite of popular protest, legal prohibitions and the disapproval of many religious and

³⁰ Shannon, “Approvement and Improvement,” 176.

³¹ Ibid. Also see Joan Thirsk, “The Crown as Projector on its own Estates, from Elizabeth 1 to Charles 1,” in *The Estates of the English Crown: 1558-1640*, ed. R. W. Hoyle (Cambridge: Cambridge University Press 1992) 297.

³² Maurice Beresford, *The Lost Villages of England*, (Stroud, UK: Sutton Publishing, 1998), 102.

³³ Beresford, *The Lost Villages*, 102.

political leaders, there was no slowing of the rate at which land was enclosed in the last half of the sixteenth century. According to Rose Hentschel, it became apparent early in Elizabeth's reign that the many acts against enclosure were simply not being enforced. Therefore, in 1569 a Royal Proclamation was made "Enforcing Statutes on Tillage and Enclosure."³⁴ Later, following the Oxfordshire uprising of 1596, authorities again attempted to deal with the problem of enforcing anti-enclosure acts, in an effort to forestall more popular agitation. The result was the 1597 "Act for the Maintenance of Husbandry and Tillage."³⁵ It was Francis Bacon who wrote the bill for this act and who argued in parliament that enclosure had four particular ill effects: "foreclosure of grounds brings depopulation, which brings forth idleness, secondly, decay of tillage, thirdly, subversion of houses and decrease of charity and charge to the poor's maintenance, fourthly, the impoverishing of the state of the realm".³⁶

If elite critics disparaged enclosing landlords as "caterpillars of the commonwealth" and the cause of dearth, idleness, and social disorder, how is it that by the turn of the seventeenth century the practice was increasing rather than declining in frequency? And what incentive did landowners have to proceed with the costly and unpopular project of erecting fences or hedges along the perimeter of their land? To understand this we must turn, finally, to the concept of improvement. Only for the first half or two thirds of the sixteenth century can we talk of enclosures without any mention of improvement. After that, improvement became ever more important.

³⁴ Rose Hentschel, *The Culture of Cloth in Early Modern England: Textual Construction of a National Identity*, (Farnham, UK: Ashgate Publishing, 2008), 311.

³⁵ Wood, *Riot, Rebellion and Popular Protest*, " 38.

³⁶ Francis Bacon, Proceedings in the Parliaments of Elizabeth I quoted in Robert P. Ellis, *Francis Bacon: The Double Edge Life of the Philosopher and Statesman* (Jefferson, NC: McFarland & Co., 2015) 50.

Enclosures- with all of their unfortunate social side effects- were merely the precondition for effecting improvement.

The Practical Origins of the Idea of Improvement

Paul Warde has traced the development of the idea of improvement from its first appearance in the sixteenth century to its discursive prominence in the eighteenth century. The word seems to have originated from the French "approuement", a common law word for the full examination of an owner's estate land and an augmentation of the profits that could be gathered from it.³⁷ This early sixteenth century term was therefore virtually indistinguishable from the term "survey," meaning to inspect land with the aim of finding greater profit or by raising the rents of tenants to increase the King's revenue.³⁸ While the term "approuement" included the notion of augmentation, the general focus at this time was less single-mindedly trained on obtaining profit than it was on maintaining power by keeping track of one's holdings or estates, or by seeking revenues for the crown.

For most of the sixteenth century, the goals of improvement were modest and practical. Mention of the practice was first made in the surveying manuals as an element of estate management. As improvement became a more central feature of these manuals, it began to be used

³⁷ Warde, "The Idea of Improvement," 129. Shannon has argued that approuement is "a legal process of enclosure" while "improvement" is the "process of extracting value from that enclosure." See Shannon, "Approuement and Improvement," 178.

³⁸ Warde, "The Idea of Improvement," 132-3. These early definitions of approuement and surveying identify the Crown as the owner of the land and the beneficiary of greater revenues. In the feudal land law, all land- even that held by the lord of a manor- was ultimately held by the King. That is, only the king owned land in any absolute sense. For an introduction to the notoriously complex history and system of English property, please see John Baker, Chapter Two, "Real Property: Feudal Tenure" in *An Introduction to English Legal History*, (London: Butterworths, 1979).

in reference to “innovations in the practical aspects of land management.”³⁹ The list of such innovations is long, and the emphasis on particular innovations depended upon the physical characteristics of particular regions. In Fenlands and Marshes it was drainage which was most needed, and where the climate was arid sometimes floating or watering of lands was required. Land considered to be overgrazed required ploughing, and land overtilled could be set aside for grazing or left fallow for recovery of the soil.⁴⁰

Every such intervention in the land required an investment of capital, labour and time. Returns on these investments were generally long term, and though their success was never certain, the continuation of customary uses of the land by tenants was considered obstructive to that success. The most obvious example of land being used at cross-purposes would be if tenants continued to graze on land now set aside exclusively for cultivation. Without enclosure, land couldn't be “cultivated according to the rational and scientific standards of improved husbandry.”⁴¹

Nevertheless, Warde reminds us that when sixteenth century surveying manuals shared the aforementioned innovations with their intended readers, landlords, they did so in order to illustrate the techniques of prudent husbandry. That is, improvement was not yet associated, as it would be in the seventeenth and eighteenth centuries, with a revolution in agriculture.⁴² So, if in the sixteenth

³⁹ Warde, 133

⁴⁰ Eric H. Ash, *The Draining of the Fens: Projectors, Popular Politics, and State Building in Early Modern England*, (Baltimore, MD: Johns Hopkins University Press, 2017); Tom Webster, "The Changing Landscape," in *The Oxford Illustrated History of Tudor & Stuart Britain* (Oxford: Oxford University Press, 1996); and Susanna Wade Martins and Tom Williamson, "Floated Water-Meadows in Norfolk: a Misplaced Innovation," *The Agricultural History Review*, 42 (1994): 20.

⁴¹ Jesse Goldstein, “*Terra Economica: Waste and the Production of Enclosed Nature*,” *Antipode* 45, no.2 (2013): 364.

century enclosures were so vociferously condemned by both commoners and elites, and if the purpose of improvement was often practical rather than profit-seeking or revolutionary, how did the discourse of improvement become as powerful, wide-reaching, and revolutionary as it would in the seventeenth and eighteenth centuries? And how did enclosures and private property meet with ever more elite approval, at the expense of the long held rights of commoners? I will attempt to answer these questions in the remainder of this chapter. But before I do, I want first to introduce the idea that enclosure and improvement, as new interacting logics that began to shape early modern projects and practices, were not confined to the sphere of agrarian economics.

The Improvement of Knowledge

Francis Bacon's Project

At the turn of the seventeenth century, thinking about Improvement did not constitute a master discourse, as it would a century later. However, one can already sense an enthusiastic reaching for the new in the writings of contemporary European thinkers from a number of fields. For nearly a century Europeans had been exchanging ideas about new techniques in the surveying and profitable management of landed property.⁴³ In England, there was an increasing thirst among the gentry for scientific and mathematical knowledge, and practical education.⁴⁴ And as European

⁴² Warde, "The Idea of Improvement," 129-133.

⁴³ Peter Barber, "Mapmaking in England, ca. 1470-1650," in *The History of Cartography, Cartography in the European Renaissance*, ed. David Woodward (Chicago, University of Chicago Press 2007), 1595-1598.

⁴⁴ Sarah Bendall, *Maps, Land and Society: a History, with a Carto-bibliography of Cambridgeshire Estate Maps, c. 1600-1836*, (Cambridge: Cambridge University Press, 1992), 159.

explorers sent back from the new world reports of foods, peoples, lands and other wonders previously unknown to Europeans, there spread a sense of excitement over the newly extended horizons of the world and a new self-consciousness of the place of Europe in this larger world.⁴⁵ Few thinkers articulated- and even anticipated – the thirst for discovery, and the belief in the possibility of continual betterment, as thoroughly as Francis Bacon.

Having served as both Lord Chancellor and Attorney General, Bacon held considerable influence in political and legal matters, but he also had a keen interest in education and the natural sciences. In his lifetime he would write manifestos calling for major reforms in each of these areas- but it was his treatise on the advancement of knowledge that would best be remembered (and for which he has come to be called the father of modern science). In his *Great Instauration* Bacon hoped to achieve no less than “to lay more firmly the foundations and extend more widely the limits of the power and greatness of man,” by demonstrating a novel approach to the acquisition of knowledge.⁴⁶ This approach would forge the middle path between those who saw little need to search further into the laws of nature –thereby “quenching and stopping inquiry” and those, on the other hand, who “asserted that absolutely nothing can be known.”⁴⁷ Bacon thought that at both extremes these attitudes to knowledge encouraged inertia and stagnation.

Inspired by the abundance of new knowledge brought back to Europe by explorers of the New World, Bacon saw his project as the natural extension of Columbus’s journey, a breeching of

⁴⁵ Paul Slack, *The Invention of Improvement: Information and Material Progress in Seventeenth Century England*, (Oxford: Oxford UP, 2015), 35.

⁴⁶ Bacon, Francis, (1620) *Novum Organum*, (The New Organon: Or, directions concerning the interpretation of nature), 47. http://www.constitution.org/bacon/nov_org.htm.

⁴⁷ Bacon, *Novum Organum*, 1.

the boundaries of the known.⁴⁸ Like the “breath of hope which blows on us from that New Continent,” his book, *Novum Organum*, was intended to breathe into its readers the hope that human understanding could be vastly improved upon.⁴⁹ Bacon proclaimed, “Surely it would be disgraceful if, while the regions of the material globe...have been in our times laid widely open and revealed, the intellectual globe should remain shut up within the narrow limits of old discoveries.”⁵⁰ Indeed, Bacon recalls Daniel’s prophecy that “Many shall go to and fro, and knowledge shall be increased” as proof that “the thorough passage of the world...and the advancement of the sciences, are destined by fate, that is, by Divine Providence, to meet in the same age”⁵¹

While Bacon acknowledged that important intellectual discoveries had been made in past ages, it was his belief that knowledge could only be advanced by *new* discoveries. Bacon felt that this forward movement would only be possible if the current structure of human knowledge was completely overhauled. For, as it stood, “the entire fabric of human reason which we employ in the inquisition of nature, is badly put together and built up, like some great magnificent structure without any foundation.” What was needed was “to commence a total reconstruction of sciences, arts, and all human knowledge, raised upon the proper foundations”⁵²

⁴⁸ Ibid, 37.

⁴⁹ Ibid, 46.

⁵⁰ Ibid, 31.

⁵¹ Ibid, 3.

⁵² Bacon, Francis, (1620) “The Great Instauration” 423-451 in *Selected Writings of Francis Bacon*, Introduction by Hugh G. Dick, (New York: The Modern Library, 1955), 424.

Before turning to the specific materials and methods with which he planned to lay the foundation of a new philosophy, let us first consider some of the dominant themes in his critique of the current state of knowledge, themes that would reappear in the improvement discourse over the following decades and centuries. In his impassioned preface to *The Great Instauration*, Bacon points to three tendencies in the prevailing approach to acquiring knowledge which he hopes his project will reverse. The first of these is contentment or satisfaction with the current store of knowledge, an attitude that Bacon finds wholly unacceptable, for “satisfaction with the present induces neglect of provision for the future”⁵³ Even those who build upon past discoveries or who claim to “improve the condition of knowledge” are guilty of inertia if “their aim has been not to *extend* philosophy and the arts in substance and value.”⁵⁴ One only had to look at how the sciences “stand almost at a stay without receiving any augmentation worthy of the human race” to see that they “have no life in them.”⁵⁵ For Bacon, the progress of knowledge is compulsory. Once it ceases to grow it is no longer living.

While Bacon wished to infuse more energy and vitality into the pursuit of knowledge, he considered activity (knowledge) without purpose and movement without direction to be as disgraceful as inertia. Aware that his project of re-founding the entire structure of the sciences might seem overly ambitious, he nevertheless felt that that was necessary, since “what is now done in the matter of science there is only a whirling round about, and perpetual agitation, ending where it began.” Thus, “it is better to make a beginning of that which may lead to something than to engage in a perpetual struggle and pursuit of courses which have no exit.” Energy expended

⁵³ Bacon, *The Great Instauration*, 428.

⁵⁴ *Ibid*, my italics.

⁵⁵ *Ibid*, 429.

without the kind of purpose and guidance with which his own project was vested, merely led to chaos or endless circling. Too often, those seeking knowledge have allowed themselves to be “carried round in a whirl of arguments, and in the promiscuous liberty of search have relaxed the severity of inquiry,” pursuing only “a kind of wandering inquiry, without any regular system of operations.”⁵⁶ If knowledge pursued in such an unfocused, meandering fashion leads to “pathless and precipitous places”, the difficult but disciplined path that Bacon set down “leads out at last into the open country”⁵⁷

This brings us to the third tendency of current knowledge, to be reversed by Bacon’s project. For Bacon, if knowledge did not lead to open country -country full of possibility and promise- then it did not lead anywhere. That is, there should be an end to knowledge –in the sense of a purpose, but not in the sense of finality. Bacon frequently described the acquisition of knowledge in agricultural language, comparing its current sterility with the abundant yields that would come from his own approach. He described the unfocused efforts of the current sciences as productive only of “contentions and barking disputations, which are the end of the matter and all the issue they can yield.” The knowledge inherited from the Greeks, he saw as equally fruitless, since their wisdom was “but the boyhood of knowledge, and has the characteristic property of boys: it can talk but it cannot generate, for it is fruitful of controversies but barren of works.”⁵⁸ The sciences should generate not only useful “works” which would benefit mankind, but also, crucially, the seeds with which to sow future crops. That is, knowledge should be *ongoing* and

⁵⁶ Ibid, 432.

⁵⁷ Ibid 424.

⁵⁸ Ibid, 429.

cumulative.

The natural history developed in *Novum Organum*, would make possible such boundless growth, for it would “supply a suckling philosophy with its first food. For though it be true that I am principally in pursuit of works and the active department of the sciences, yet I wait for harvest time, and do not attempt to mow the moss or reap the green corn.”⁵⁹ Finally, Bacon envisaged his improved system of knowledge yielding fruit even in the most neglected areas of study, “[f]or there are found in the intellectual as in the terrestrial globe, waste regions as well as cultivated ones.”⁶⁰

Clearly, the flaws that Bacon identified in the prevailing approach to knowledge-complacency, aimlessness, and barrenness- were closely related to one another. Each represented a way of being in the world that, to Bacon’s thinking, was no longer legitimate, for they lacked the necessary forward momentum. In both *The Great Instauration* and the *Novum Organum* we find an extended metaphor comparing geographic with intellectual exploration. Thus it is not surprising that Bacon described his project in terms of a journey through a forest, or across the seas. The old approach to knowledge was insufficiently or ineffectually active, either lacking movement by failing to venture beyond the known paths, or moving wildly, without design, or ending its progress too soon. Bacon advocated a new kind of movement for a new age: ordered, linear, progressive, cumulative, purposeful and ongoing. This is the movement of improvement; upward, forward, and infinitely outward. In the coming decades Bacon’s successors would, in the process of articulating a discourse of improvement, sharpen their criticism of the old ways of knowing and

⁵⁹ Ibid, 446-7.

⁶⁰ Ibid, 440.

moving in the world. By the mid-seventeenth century, frustration with the complacency of the current store of knowledge would be tied to a frustration with the static nature of a social order still mired in feudal social relations. Contempt for the meandering approach to knowledge would intersect with contempt for the untamed wilderness of the New World and the “promiscuous liberty” of its nomadic inhabitants.⁶¹ And the impatience with all corners not yet exposed to the light of knowledge would be manifested in an impatience with wastes and commons- nature not yet made to yield fruit.

Provisional Certainty and the Enclosing Logic of the Natural Fact

While Bacon clearly wished to infuse a new striving spirit into the sciences and philosophy, he was equally concerned that such striving be supported by as solid a foundation as possible. Without this grounding element the spirit of inquiry would wander in all directions until it dissipated. Unshepherded, the impulse to discover could lead us astray. The problem with the current foundation of knowledge was that the two materials with which it was constructed- the senses and human reason- were fundamentally unstable. The senses could not be trusted entirely because the insight they provided was only partial: the truth it captured was confined to what was detectable by humans. Meanwhile, human reason tended to lead to the opposite mistake of

⁶¹ Ibid, 432. A number of scholars have explored Bacon’s role in creating an ideological legitimization of British colonialism. See for instance, Andrew Fitzmaurice, *Humanism and America: an Intellectual History of English Colonisation*, (Cambridge: Cambridge University Press, 2003); David Armitage, *The Ideological Origins of the British Empire* (Cambridge: Cambridge University Press, 2000); Karen Ordahl Kupperman, ed., *Major Problems in American Colonial History: Documents and Essays*, 2nd ed. (Boston, 2000); and Karen Ordahl Kupperman, *Indians and English: Facing off in Early America*, (Ithaca, 2000). Sarah Irving however, argues that Bacon’s attitude towards colonial expansion was complex, and fraught with both moral and epistemological anxiety. See Sarah Irving, “‘In a pure soil’: Colonial anxieties in the work of Francis Bacon.” *History of European Ideas* 32, no. 3 (2006): 249.

declaring general principles which “floated in the air” and were too distant from the conditions on the ground to be accurate.⁶²

By drawing attention to such limitations in human understanding, Bacon’s critique reflects an emerging reflexivity of knowledge in his culture. But if he was skeptical about whether the truth could be accessed by human understanding, he was also optimistic that such limitations could be overcome with what he called “helps.” Technological innovations that amplified and refined the human senses are the most obvious form of such “helps”, and Bacon was indeed, enthusiastic about the role of such tools.⁶³ But “helps” also meant the social and intellectual practices that could constrain the volatility, balance the partiality and challenge the prejudices which plagued human understanding. And such practices are what Bacon hoped to initiate with the second part of his project, *Novum Organum*.

Literally meaning “new tool” or “new method,” *Novum Organum* worked like a surveyor’s estate map, laying out the contours and categories of knowledge in order to more easily identify areas in need of improvement. As Bacon saw it, this gathering and organizing of information about the facts of nature would lead to a “more perfect use of human reason in the inquisition of things, and the true helps of the understanding...this view (which I call Interpretation of Nature) is a kind of logic” different from ordinary logic in “the end aimed at; in the order of demonstration; and in the starting point of the inquiry.”⁶⁴ If the purpose of “ordinary logic” was “to overcome an

⁶² Ibid, 427

⁶³ He claimed, for example, that “in every great work to be done by the hand of man it is manifestly impossible, without instruments and machines.” See *Novum Organum*, 2.

⁶⁴ Ibid, 441

opponent in argument” with abstract demonstrations of syllogisms, the purpose of his logic (induction) was to “command nature in action.” Whereas ordinary logic tended to “fly at once from the sense and particulars up to the most general propositions,” his plan was “to proceed regularly and gradually from one axiom to another so that the most general are not reached till last.”⁶⁵ This way, each stage in a line of inquiry could be tested for the firmness of its grounds.

Finally, all inquiry must begin with the observation of particular natural phenomena, “facts of nature” observed in experimental trials. At this, the first step in the pursuit of knowledge, observation and experiment are the specific ‘helps’ that Bacon recommends for correcting the weaknesses of the human senses and reason. In prescribing the careful observation of natural phenomena Bacon shared in the modern tendency to elevate vision above the other senses. As we have “seen” in the second chapter, the eye has long been associated with truth, justice and divine knowledge. We also saw how, in Renaissance art and in late sixteenth century surveying and mapping, the perspective of the distanced, removed observer was thought to attain a universal truth, especially when directed by the laws of geometry. At the same time, however, early modern attitudes to vision’s relationship to the truth were ambivalent, for the eye could deceive as well as it could reveal.⁶⁶

Aware of this potential to be deceived by sight, Bacon stressed that the advancement of the sciences depended on “keeping the eye steadily fixed upon the facts of nature and so receiving their images simply as they are.”⁶⁷ For he was quick to caution his readers that observation (which

⁶⁵ Ibid, 442

⁶⁶ Stuart Clark, *Vanities of the Eye: Vision in Early Modern European Culture* (Oxford, Oxford University Press, 2007).

is, after all, a fallible human sense) must submit to the context provided by experiment:

For the testimony and information of the sense has reference always to man, not to the universe; and it is a great error to assert that the sense is the measure of things.... To the immediate and proper perception of the sense therefore I do not give much weight; but I contrive that the office of the sense shall be only to judge of the experiment, and that the experiment itself shall judge of the thing.⁶⁸

Thus, the experiment mediates between the senses and the object being viewed and in its role of framing experience it is reminiscent of the *costruzione legittima*, the ‘open window’ technique used by Renaissance artists to paint the scenes before it in alignment with geometric rationality. As a framework which contains or constrains both the natural phenomenon being viewed and the sense itself, thus “giving reference to the universe,” Bacon’s experiment is like an intellectual version of the *costruzione legittima*.⁶⁹ However, unlike Renaissance perspective, his notion of the “universal” was not confined to geometric rationality. In fact, Bacon was aware of the limits of rational thought and he thought that ideally rational and empirical thought should

⁶⁷ Ibid, 451

⁶⁸ Ibid, 444

⁶⁹ Crosby describes the technique by which *costruzione legittima* was achieved: "one should resort to a crude kind of spatial quantification by setting up a veil between oneself and the subject to be painted...with larger threads (marking out as many parallels as you prefer' " ..."the reality beyond the veil's network should be observed only through the veil" ..."one was to paint or draw not what one *knew* to be true about the scene- or instance, with parallel lines always the same distance apart- but strictly what one *saw*" ..."then one would transfer that to a flat surface on which one had carefully drawn lines equivalent to the veil's threads. The veil enabled the painter to quantify not reality, but...the *perception* of reality." In addition to the veil, Crosby says, "painters needed...geometrical technique." What Alberti suggested was to think of the picture plane as a window and then divide the person in the foreground into three parts. See Alfred W. Crosby, *The Measure of Reality: Quantification in Western Europe: 1250-1600*, (Cambridge: Cambridge University Press, 1997), 184-187.

work together.⁷⁰ In this way Bacon's "helps" corrected the shortcomings of both the human senses and human reason. The partial information of the human senses was made more complete when observation was made to follow the thorough examination of an object in experiments. At the same time, the abstract principles of rationality had no place in an inquiry which began with observation and experiments. The object of inquiry was not only particular in comparison with its general concept, but it was also *particularized*, for inductive logic and experiment "shall analyze experience and take it to pieces, and by a due process of exclusion and rejection lead to an inevitable conclusion."⁷¹

The experiment itself was an artificial construct, intended to reveal as many "facts" about a natural event or object as possible. Bacon wanted his natural history (the gathered facts of nature on which his philosophy would be built) to be:

a history not only of nature free and at large (when she is left to her own course and does her work her own way)- such as that of the heavenly bodies, meteors, earth and sea, minerals, plants, and animals- *but much more of nature under constraint and vexed*; that is to say when by art and the hand of man she is forced out of her natural state and squeezed and moulded...I do in fact...count more upon this part both for helps and safeguards upon the other, seeing that the nature of things betrays itself more readily under the vexations of art than in its natural freedom."⁷²

⁷⁰ It should be noted, however, that Bacon's idea of experimentation was much closer to empiricism than to rationality, for, unlike rationality, empirical thought was always grounded on concrete and particular experience. See Bacon, *The Great Instauration*, 435. Also See Jürgen Klein, *The Stanford Encyclopedia of Philosophy Online*, s.v. "Francis Bacon," ed. Edward N. Zalta (Winter 2016 Edition), accessed March, 18 2017, <https://plato.stanford.edu/archives/win2016/entries/francis-bacon/>

⁷¹ Ibid, 443.

⁷² Ibid, 447. Italics added.

As Bacon famously remarked, we “have to obey nature in order to command it.”⁷³ That is, he thought it crucial to find and follow nature’s *hidden* laws so that those laws could be manipulated for human purposes. But to discover those laws, Bacon clearly felt that some human intervention was required to better access and understand it. His natural history therefore was not a matter of simply collecting information on the “found objects” of nature, but of submitting such objects to “the vexations of art”, an intensive mining and testing of their properties to discover their instrumental potential.

In this sense, then, Bacon’s project not only articulated the upward and onward extending movement of improvement, but in its methods for correcting the imperfections of the human understanding, it also exhibited a logic of enclosure. Induction- his order of demonstration- ensured that inquiry didn’t wander or jump impulsively from facts to general theories, but followed a regular and systematic sequence of steps. The senses submitted to the confines of each experiment, and experiment itself placed “nature under constraint” in order that it yield a greater bounty of answers. Just as enclosures fenced off all competing claims to and uses for land in order to concentrate upon its improvement, Bacon’s methods fenced in the objects of inquiry in order to obtain a greater harvest of useful knowledge.

Certainly the balancing of the general and the specific, and the need and ability to separate objects of knowledge from one another, or group them together by some shared trait, are all common features of the human understanding itself, not novelties invented by Bacon. But Bacon

⁷³ Quoted in W.A. Sessions, W. A. (ed.), *Francis Bacon's Legacy of Texts* (New York: AMS Press, 1990), 136.

himself thought that his methods of ordering and examining nature diverged sharply from the approach to knowledge which had so far prevailed in human history. Rees explains that in contrast to previous approaches to knowledge, which depended upon “encyclopedic repetition” and rhetorical persuasion, Bacon’s project stressed *original* investigation and interpretation, and called for the ongoing revision and accumulation of knowledge by a wider community. Where previous approaches tended to look backwards, “deferring to authority” and focusing on “conservation of traditional knowledge,” Bacon’s looked forward, envisioning “a new, *functional* realization of natural history” and a “thoroughgoing attempt to improve the material conditions of the human race.”⁷⁴ The purpose of his project was not to advance knowledge for its own sake, but to glean from nature all that might be useful in the advancement of human progress.

At roughly the same time as Bacon was broadcasting his vision of nature as an instrument of human improvement, early modern surveyors were beginning to view and represent land from the distanced perspective afforded by empirical and rational methods and measurements. Bacon’s methodology, a similar mixture of empiricism and rationality, likewise facilitated a distanced perspective of nature as an object of interpretation, with a view to its reform.⁷⁵ Equally, however,

⁷⁴ Graham Rees, *The Oxford Francis Bacon, Volume XI: The Instauration Magna: Part II. Novum Organum*, ed. G. Rees and M. Wakely, (Oxford: Oxford University Press, 2004), xlii.

⁷⁵ In fact, according to McRae, Bacon’s program, which would help to shape the seventeenth century discourse in agricultural improvement, was important not because it was original, but because, in Christopher Hill’s words, it elevated ‘to a coherent intellectual system what had hitherto been the only partially spoken assumptions of practical men.’ That is, it gave voice and structure to the empirical knowledge employed by surveyors, cartographers and other “practical artisans” from the mid sixteenth century on. See Andrew McRae, *God Speed the Plough: the Representation of Agrarian England, 1500-1660* (Cambridge University Press, 2002), 136, 158. On the influence of other practical arts on Bacon’s method see Cesare Pastorino, “The Philosopher and the Craftsman: Francis Bacon’s Notion of Experiment and its Debt to Early Stuart

his methods were intended to excise as much as possible from the process of knowledge acquisition the prejudices, delusions and partialities to which the human mind was subject. Thus, it was also knowledge itself that his methods put at a distance and submitted to experiment and reform. Bacon's project, and the scientific revolution that would follow him, thus exhibited a tendency towards reflexivity, an awareness of the constructed nature of knowledge that is associated with modern epistemology. As Levao puts it, *The Great Instauration* was largely concerned with "the attempt to employ yet contain the mind's active construction of its own forms of coherence."⁷⁶

For every assertion that his method would lead to certain knowledge, Bacon also expressed his doubt about the possibility, or even wisdom of resting upon any claim to have arrived at a certainty. His recognition of the contingency of human knowledge and his double message of certainty and uncertainty, feature consistently throughout his writing. For this reason, when scholars critiquing the scientific epistemology of modernity characterize his project as the quintessential conquest of nature by the imperial tool of objectivity, they are surrendering to a formula that is far too neat, and missing something crucial not only about Bacon's project but about the role of certainty in modernity itself.⁷⁷

Inventors," *Isis*, 108, no. 4 (2017): 749.

⁷⁶ Ronald Levao, "Francis Bacon and the Mobility of Science," *Representations*, 40 (Autumn 1992): 1-32, 3. On the reflexivity of Bacon's project also see Dennis Desroches, *Francis Bacon and the Limits of Scientific Knowledge* (London: Continuum, 2006), 6.

⁷⁷ In summarising such readings of Bacon's project, Levao primarily uses the work of Timothy Reiss as an example See Timothy J. Reiss, *The Discourse of Modernism* (Ithaca, NY: Cornell University Press, 1982). Levao demonstrates the instability, and *mobility*, of Bacon's thought and method.

While objective certainty and “true knowledge” may have been the ideals towards which Bacon aspired, he was evidently aware that such a condition could not be attained. According to Levao, “Bacon hopes for an objective certainty that will eventually overtake and complete his method, but it is this method itself that makes the objective ideal possible, even as it eludes its requirements or, as Mary Hesse has put it with regard to the ladder of axioms, ‘the conditions of Bacon’s method can never be fulfilled.’” Far from inflicting upon nature some fixed commitment to objective certainty, Bacon’s method involved containing devices like the experiment precisely because he saw both nature and the mind as inherently ungrounded, and mobile.⁷⁸

The objective of Bacon’s measured and deliberate advancement of knowledge was “to establish progressive stages of certainty,”⁷⁹ so that the human mind is not “left to take its own course, but guided at every step.”⁸⁰ He understood that whatever certainty could be attained was only temporary because the future was as yet unknown, and all knowledge was open to revision. Thus his method “*established provisionally certain degrees of assurance* for use and relief until the mind shall arrive at a knowledge of causes in which it can rest.”⁸¹ And yet, he himself knew that such rest was unattainable because “of knowledge there is no satiety, but satisfaction and appetite are perpetually interchangeable.”⁸² Provisional certainty was thus a way of closing off a matter in order to proceed; if no questions were bracketed and put to the side, if all remained open

⁷⁸ Levao, “Francis Bacon and the Mobility of Science,” 15.

⁷⁹ Bacon, *Novum Organum*, 1.

⁸⁰ *Ibid*, 2.

⁸¹ Bacon, *The Great Instauration*, 450.

⁸² Bacon, *The Great Instauration*, 218.

to question, then no conclusions could be drawn upon to serve as a foundation for a succeeding stage of inquiry. Provisional certainty is very much what I propose modernity is about; ever crossing new boundaries, and opening the future, necessitates the creation of smaller boundaries for what Bacon called “use and relief.” Arising from the uprooting of old foundations, modernity must continually fashion new foundations upon which to ground itself, until they too, are uprooted.

This approximate, functional, and provisional certainty is facilitated by a logic of enclosure, whether it is manifested spatially, as fenced-in agricultural land, or conceptually, as the artificial conditions of a scientific experiment. Enclosure establishes a boundary between the object of reform or inquiry and the context in which it is embedded. This boundary is not necessarily complete or representative of an absolute truth. Rather it separates the object from the complexity of context just enough to allow action (dissection, improvements) to proceed. It works as scaffolding, a rough structure with which to build a more ambitious structure.

Fact Determination in Early Modern Law and Science

Such extensive consideration of how Bacon’s project aligned with what I am calling ‘the enclosure and improvement of knowledge’ is not intended to suggest that the cultural preoccupation with improvement originated solely or even primarily with him. In fact it is likely that many of his contemporaries shared his way of thinking about the advancement of knowledge, as well as his repeated use of metaphors for cultivation and bounty, or new world exploration. Nevertheless, Bacon’s *Great Instauration* and *Novum Organum* were remarkably influential for the generation that followed him, especially among the Hartlib group and those involved in the creation of the Royal Society. And it is through Bacon that we can see an important link between seventeenth century legal and scientific thought and practice. This is particularly so when we consider the

impact of Bacon's experience in the legal profession on his methodology of progressing through stages of provisional certainty. Cohen, for example, notes how Bacon's approach to legal and scientific reasoning followed a similar inductive pattern:

Bacon held that as a common lawyer arrived at greater and greater generality in the formulation of his legal rules as he moved higher and higher up what Bacon called 'the pyramid of axioms' the lawyer would find his rules beginning to approximate to standard moral principles....So for Bacon all the basic patterns of inductive reasoning could be applied in a normative context just as well as in a factual one: variation of evidential instances, increase of certainty via increase of generality, avoidance of trivial increases in generality via the requirement that every increase should lead to new knowledge"⁸³

⁸³ Jonathan L. Cohen, "Intuition, Induction, and the Middle Way," *The Monist* 65, no.3, (1982): 287. The relationship between Bacon's legal experience and his project to reform both natural philosophy and epistemology has been curiously neglected in the literature on Bacon. Among the few who have looked in detail at this relationship, there is disagreement about the direction of influence. Levack and Coquillette have argued that it was Bacon's scientific thought that shaped his efforts to reform the common law. See Brian P. Levack, "Francis Bacon by Daniel R. Coquillette," *The American Journal of Legal History* 39, no. 1 (1995): 112-113; and Daniel R. Coquillette, "Past the Pillars of Hercules: Francis Bacon and the Science of Rulemaking," *University of Michigan. Journal of Law Reform*, 549 (2013). Others have contended that Bacon developed his ideas concurrently in both spheres. Martin, for example, has claimed that "Bacon's reformed science of the law and his reformed natural philosophy have the same purpose, the same techniques, the same vocabulary and the same hierarchical organization." See Julian Martin, *Francis Bacon, the State, and the Reform of Natural Philosophy*, (Cambridge: Cambridge University Press, 1992), 170. Sarjeantson argues that it was the legal approach to investigating matters before a court that influenced Bacon's overall theory of the 'interpretation of nature' while, for Wheeler, it was jurisprudence helped to shape Bacon's inductive epistemology. See Richard Serjeantson, 2014. "Francis Bacon and the 'Interpretation of Nature' in the Late Renaissance," *Isis* 105, no. 4 (2014): 681; and Harvey Wheeler, "The Invention of Modern Empiricism: Juridical Foundations of Francis Bacon's Philosophy of Science," *Law Library Journal*, 76 (1983): 78. The gathering and determination of 'facts' in law and in Bacon's scientific method has been discussed by Martin and Serjeantson, as well as by Barbara J. Shapiro, *A Culture of Fact: England, 1550-1720* (Ithaca, NY: Cornell University Press, 2000), Roger T. Simonds, "Bacon's Legal Learning: Its Influence on His Philosophical Ideas," *Acta Conventus Neo-Latini Sanctandreami, Proceedings of the Fifth International Congress of Neo-Latin Studies*, ed. D. McFarlane, (Binghamton, NY: Center for Medieval and Early Renaissance Studies, 1986) and Kenneth Cardwell, "Francis Bacon,

According to Shapiro, one of the most important practices that Bacon imported from the legal realm and applied to the scientific or intellectual, was that of ‘fact determination’. When Bacon makes the “facts of nature” the concrete foundation for the new philosophy of sciences, he plays a key role in the transmission of the legal and historical concept of the “fact” to the realm of natural phenomena.⁸⁴

The legal concept of the fact has its origins in Roman law. Glenn explains that the *factum* was the term for “the formal document in law representing solemnized reality.”⁸⁵ Poovey, meanwhile, points to the double meaning to the word *factum* in Latin: in Classical Latin it referred simply to an event or occurrence, whereas in scholastic Latin it came to mean “something that really occurred or is actually the case.” Thus the modern fact derived from this ambiguity in the Latin word, wherein the fact meant both that which is *real* or *actual*, and that which simply happened. Poovey notes that, likely in order to distinguish it from this ambiguity of meaning in scholasticism, the scientific thinkers defined the fact as “a datum of experience, as distinguished from the conclusion that may be based upon it.” Poovey therefore see Bacon’s use of ‘facts’ in the *Great Instauration*, as an ‘attempt to reorder the priorities of modern knowledge production in such a way as to elevate the ‘discovery’ and use of observed or historical particulars and to demote the scholastic ‘cultivation’ or contemplation of accepted commonplaces.”⁸⁶

Inquisitor,” in *Francis Bacon's Legacy of Texts*, ed. William Sessions, (New York: AMS Press, 1990), 281-284.

⁸⁴ Shapiro, *A Culture of Fact*, 110.

⁸⁵ H. Patrick Glenn, *Legal Traditions of the World: Sustainable Diversity in Law* (Oxford: Oxford University Press, 2010), 148.

⁸⁶ Mary Poovey, *A History of the Modern Fact: Problems of Knowledge in the Sciences of*

In England, the spread of the fact from a legal to a scientific and then to wider cultural context between the sixteenth and eighteenth centuries may also indicate that there was a growing appetite in this period for fixed references to the real and the true, and a hunger for greater certainty about all sorts of matters.⁸⁷ Indeed, Poovey points out that Bacon wrote his works on the reformation of knowledge at a time when England was experiencing a “crisis of knowledge,” and an abundance of “religious and epistemological heterodoxies”⁸⁸

In medieval Europe legal disputes were largely settled at the local level, and proof of claims was determined by oaths and ordeals, interpreted as divine testimony of the truth. By the late medieval period the Romano-civil legal tradition of law began to rationalize its system of evidence, promoting the use of witnesses to verify events in question, and of professional judges to weigh evidence. By the mid sixteenth century, the English common law system began to follow suit, and

Wealth and Society (University of Chicago Press, 1998), 96.

⁸⁷ Konnert has suggested that the search for order implicit in the scientific revolution stemmed from the religious and political controversies and general turmoil of the seventeenth century Europe. See Mark Konnert, *Early Modern Europe: The Age of Religious War, 1559-1715* (Toronto: University of Toronto Press, 2008), 313. In fact, the seventeenth century has been defined as a period of general crisis across Europe. See Eric Hobsbawm, "The General Crisis of the European Economy in the seventeenth Century," *Past & Present* 5 (1954) and Hugh R. Trevor-Roper, "The general crisis of the seventeenth Century," *Past & Present* 16 (1959). These two articles sparked a debate among historians that lasted for 40 years and which is considered more recently in Geoffrey Parker and Lesley M. Smith, *The General Crisis of the Seventeenth Century* (London: Routledge, 2005). <https://doi.org/10.4324/9780203992609>.

⁸⁸ Poovey, *A History of the Modern Fact*, 97. Poovey also reminds us that Bacon was a statesman, and that in this period of epistemological insecurity, his ideas were intended to support “the monarch’s ability to adjudicate and use what counted as truth” 97-8. On this topic, also see Julian Martin, *Francis Bacon, the State, and the Reform of Natural Philosophy* (New York: Cambridge University Press, 1992).

added to their system of evidence the further innovation of juries.⁸⁹ By the time of Bacon and Coke, a “matter of fact” was distinguished from a “matter of law”, the former being an event or act or deed the proof of which was determined by a jury, and the latter an issue to be decided by the judge.⁹⁰

The rationalization of the common law, whereby witnesses, judges and juries replaced oracles and oaths, marked the arrival and acceptance of a new way of thinking about knowledge. As Shapiro explains, in the legal context the “need to make decisions about events that are no longer present... requires faith in the possibility of reaching adequate and reasonable belief about such events and a mode of thinking about what is knowable, who can know it, and under what conditions it is knowable, as well as institutional arrangements and processes for knowing.”⁹¹ The rationalization of the common law, thus, was part of the process of one legal tradition gradually being replaced by another: In the “chthonic” tradition, disputes were judged and resolved at the local level, by members of the community, who used their own discretion in practices such as oaths and ordeals. But as the courts in London became the centre for the common law across England, norms and standards extended outwards from that centre, universalizing the practice of law. The imposition of the “modern” common law had a similar effect as the introduction of scientific surveying in the late sixteenth century: just as land was no longer measured and allotted by local and traditional knowledge but by the “common units” of geometry and numerical

⁸⁹ Shapiro argues that the jury system in English law played a crucial role in the transmission of fact to other disciplines and to the wider culture: “the spread of ‘fact’ in England was facilitated by widespread familiarity with and esteem for lay fact finding by juries.” See Shapiro, *A Culture of Fact*, 209.

⁹⁰ Shapiro, *A Culture of Fact*, 208

⁹¹ *Ibid*, 208.

calculation, the truth or justice of events was measured less and less by local standards and authorities and more and more by the standards of visual first hand testimony, professional judgement or jury determined facts.⁹²

Bacon's optimistic view that all natural phenomena could be made knowable -once the common limitations and distortions of the human understanding were recognized and corrected- clearly developed out of his own efforts to further rationalize the English Common law system.⁹³ By the turn of the seventeenth century a number of new "institutional arrangements" and "processes for knowing" had been introduced to strengthen the legitimacy of the evidentiary system.⁹⁴ In courts across Europe for example, it had become customary to require the testimony of at least two eyewitnesses. And these witnesses- as well as jury members in England- were also vetted for their credibility, in order to rule out bias and hearsay in the determination of facts. Such changes brought clarity to the discovery of the truth. According to Shapiro, "legal systems that treat fact-finding as a rational rather than ritualistic process or invocation of divine intervention require methods of fact determination comprehensive to litigants and to the culture as a whole." They have "an underlying epistemology... as to the human ability to arrive at "true" and "just" decisions."⁹⁵ It is important to clarify here that "facts" were by no means understood to be synonymous with "truth" the way they often are today. Rather than being proof of something, they

⁹² For more on the comparison and relationship between the "chthonic" and the modern common law traditions please see Glenn, *Legal Traditions of the World*.

⁹³ Stephen Gaukroger, *Francis Bacon and the Transformation of Early Modern Philosophy*, (Cambridge: Cambridge University Press, 2001), 58-9.

⁹⁴ Shapiro, *A Culture of Fact*, 208.

⁹⁵ *Ibid*.

were the matter to be proved. As Shapiro puts it, “early modern English facts (legal and non-legal) remained in the realm of probability.”⁹⁶

In *the Great Instauration* Bacon did more than simply apply the legal term “fact” to the study of natural history. His method of determining “the facts of nature” also corresponded to the above mentioned rules of evidence in law, rules which were meant to minimize the human tendency to bias and distortion and to ensure a minimum degree of “moral certainty”. For example, both the scientific experiment and the legal trial are artificial constructs designed to closely analyze and evaluate matters of fact. And though the facts of nature are not determined by a jury, the scientific experiment has the advantage of being endlessly replicated- allowing for even greater consensus on its results. Moreover, like the legal requirement that testimony is derived from *eyewitnesses*, the importance of observation to Bacon’s method assumes the greater credibility- and objectivity- of sight over the other senses.⁹⁷

The transmission of these techniques and rules of fact determination from the realm of law to that of natural history points to a deeper cultural transformation taking place at the turn of the seventeenth century. We have already touched upon one aspect of this transformation, which is

⁹⁶ Ibid, 209

⁹⁷ It should be noted that the concept of the fact did not pass exclusively from the legal to the scientific realm or through the exclusive intervention of Bacon. Rather, the legal fact had its counterpart in historiography since at least the sixteenth century. Just as in the legal context historians followed the standards of credibility such as Eyewitness testimony and documentary evidence that would ensure the accuracy of recorded events. And, as Shapiro argues, by the time that Bacon wrote the great Instauration, there were a host of already existing discourses which were receptive to the concept of the fact, such as chorography and topography. See Shapiro, *A Culture of Fact*, 209 and J.B. Harley, “Maps, Knowledge and Power,” in *The Iconography of Landscape: Essays on the Symbolic Representation, Design and Use of Past Environments*” ed. Dennis Cosgrove and Stephen Daniels, (Cambridge: Cambridge University Press, 1988), 299-300.

that the “truth”- about events that happened or about the laws of nature- was now considered to be knowable in a way that it had not been before.

Shapiro reminds us that Vico, as late as the early eighteenth century, still distinguished between *factum* and *verum*.⁹⁸ The first signified the knowable realm of the human made world, while the latter signified the “unknowable world that God made.” This distinction had already begun to erode in the seventeenth century, as *verum* –the unknowable- was increasingly colonized by *factum*- the known. Bacon played his part in that process, for “the innovation of Bacon and his successors was to apply the techniques and conceptions developed to deal with human deeds to natural phenomena, that is, to the works of God.”⁹⁹ Foucault has also argued that the major discontinuity in the history of thought that took place in the seventeenth century stemmed from “modifications that affected knowledge itself” such as “the substitution of analysis for the hierarchy of analogies.” That is, an *episteme* of integration was replaced by one of discrimination.¹⁰⁰ From the renaissance to the late sixteenth century the known world was full of resemblances, hierarchies, microcosmic patterns corresponding with macrocosmic patterns.

⁹⁸ Shapiro, *A Culture of Fact*, 106. Vico’s maxim “verum ipso factum” meaning that truth is man- made, is an early example of both constructivist epistemology and the modern reflexivity of knowledge. But as Shapiro’s points out, the maxim reveals the presumed distinction between truth and fact even though that distinction had begun to erode by Vico’s time.

⁹⁹ Ibid, 106-7

¹⁰⁰ In *the Order of Things*, Foucault describes his notion of the *episteme* as an “epistemological field” or a “space of knowledge” that exists in a culture below anyone’s conscious awareness. It is the episteme of one’s time and culture that gives one a sense of order, particularly with regard to knowledge. It is the “condition of possibility” of all knowledge. See Michel Foucault, *The Order of Things: An Archeology of the Human Sciences* (Vintage Books: New York, 1973), xxii; 54-5.

Foucault calls it a “total system of correspondence.”¹⁰¹ Within that totality there was an infinite “interplay of similitudes”, but as a totality it was, by definition, a closed system:

...understood as a *general configuration* of nature”, the “epistemological configuration of this period”... “poses real, and as it were, tangible limits to the indefatigable to-and-fro of similitudes relieving one another. It indicates that there exists a greater world, and that its perimeter defines the limits of all created things; that at the very far extremity of this great world there exists a privileged creation which reproduces, within its restricted dimensions, the immense order of the heavens, the stars etc.¹⁰²

In the new “epistemological configuration” the ordering function of this perimeter begins to vanish, the system is open, and the order given by borders can now only be established between things. What had been integrated in a whole is now separated and made discrete. Thus, paradoxically, the same process which brought the human and divine realms into unity, also dissected what had been whole. As Foucault explains: “From now on every resemblance must be subjected to proof by comparison...until its identity and the series of its differences have been discovered by means of measurement with a common unit.”¹⁰³

In the old episteme, everything is situated and oriented by the boundary dividing the human and divine realms. As that boundary is extended in the seventeenth century, the objects of knowledge are plotted by reference to a common unit of measurement. We saw an early example of such a way of framing experience in the renaissance innovation of perspectival drawing, whereby each point in a drawing led geometrically back to the eye of the artist or the viewer.

¹⁰¹ Foucault, *The Order of Things*, 55.

¹⁰² *Ibid*, 30.

¹⁰³ *Ibid*, 55.

This transformation of knowledge from the sixteenth to seventeenth centuries paralleled changes in the practice of Christianity introduced by protestant reformers, such as the removal of intermediaries- priests, rituals and idols- in order to bring God and the believer into direct relationship and the translation of the word of God into vernacular languages so that the meaning of the scriptures could be discussed in community with fellow worshippers. Similarly, the symbols, hierarchies, mysteries, and microcosms that made sense of the world in the renaissance and up until the seventeenth century, were now seen as so many veils obscuring a knowable order. It was no longer acceptable to write outside the boundaries of one's map of the world, "there be dragons", for it was no longer acceptable to offer an incomplete map. Whatever lay beyond the border of the known world could no longer remain blank. Replacing mystery and myth, human reason was the new tool for digging up the truth. Thus, as Shapiro says, "Bacon's new natural philosophy was to be built on natural histories expunged of literary, mythical and symbolic elements" or "traditional lore."¹⁰⁴

The spread of facts from a legal and historical context, to a scientific one was only the beginning: from the mid-seventeenth century, England became a "culture of fact", wherein fact in English law became part of the "generally held habits of thought characteristic of late seventeenth century and early eighteenth century English culture."¹⁰⁵ Facts would become the key means of claiming the truth across the culture. It is my hypothesis that the cultural hunger for certainty grew, in direct proportion to which the horizon of the known receded. That is, the more it appeared that the realm of the knowable was limitless, the less effective traditional frames of reference, or forms

¹⁰⁴ Shapiro, *A Culture of Fact*, 108.

¹⁰⁵ *Ibid*, 209.

of guidance were in sheltering people from uncertainty. Perhaps this is why the instrumental value and techniques of fact determination were largely drawn from the legal context. Law, as we have seen in chapter two, was the first institution to separate itself from the hierarchy of divine authority; it was the first institution of secular, or consciously human-made authority. The rational and empirical methods of determining a probable truth and the aura of authority that surrounded the legal tradition lent legitimacy to the scientific process, a process which could be carried out – and carried – anywhere: a portable framework for asserting reality.¹⁰⁶

But a culture which has begun to transgress or “trespass” over its traditional boundaries, which has begun to push back the limits of the knowable, soon suffers from the vertigo of infinity and from exposure to uncertainty. This only further whets the appetite for knowledge, control and certainty, sharpens the need to fix objects of knowledge or improvement within artificial enclosures, as expressions of provisional certainty. And the more facts that are accumulated, or acres enclosed, the less that guidance can be gleaned from the evaporating boundaries of the old order. And, of course, we can’t forget that before the fact could ascend to a “representation of

¹⁰⁶ At the same time, Berman notes that the relationship between law and science in the seventeenth century was not unidirectional: the scientific revolution reshaped the legal order in two ways. First, whether through deduction or induction, “Cartesian” or “Galilean” forms of reason stressed the identification of truth with “what the mind can weigh, measure and count and which presupposed the objectivity of the observer” (267). If the first involved methods of obtaining mathematical certainty, the second used empirical methods, such as experimentation, to reach “moral” certainty, or “probability”. The greater the consistency of the results gleaned from an accumulation of experiments in the scientific community, the higher their “probable” truth (probability here referred to the approbation of the community). The greater role of empiricism in the English common law, as compared with the civil law, is discernible in its pragmatic and evolutionary character. The common law equivalent of scientific consistency in the scientific community is the historical continuity of the common law through the doctrine of precedent. Berman argues that the first, mathematical revolution corresponds with positive science and jurisprudence, while the second corresponds to empirical science and historical jurisprudence. See Harold Berman, *Law and Revolution, Volume Two: The Impact of the Protestant Reformations on the Western Legal Tradition* (Cambridge, MA: Harvard University Press, 2004), 299.

verified reality”¹⁰⁷ it required the removal of (irrational) obstacles between the seeker of knowledge and the object of knowledge. This process was mirrored in the removal of customary rights to make way for enclosures.

Enclosures and the Discourse of Improvement in 17th and 18th England

The Materiality of Enclosures: Hedges and Resistance

I have suggested above that legal and natural facts achieved a provisional certainty about an object of inquiry by abstracting it from the complexity and variability of its context. But I also want to emphasize that this abstraction of the object is simultaneously *the excision and erasure* of that context. In the determination of natural facts this excision usually takes the form of experimental controls and is thus largely intellectual or representational. But when this logic of enclosure was enacted on the ground, as it was with property, the excision and erasure of context impacted people.

As much as I have been exploring the logic of enclosure in relation to the new approach to knowledge (thus metaphorically, symbolically), I am in agreement with Nicholas Blomley that we should be careful to remember the materiality of enclosure itself. There is, of course, a long line of scholars who have done just that, by bringing to light the social history of enclosures. From Marx and Polanyi to E.P. Thompson to Jeanette Neeson, we have learned that private property, far from being a natural phenomenon, was created out of the destruction of common right, and the disembedding of people from their habitats.¹⁰⁸ What’s more, they have taught us that, unlike the

¹⁰⁷ Berman, *Law and Revolution*, 300.

¹⁰⁸ Marx, in “Debates on the Law of the Theft of Wood”; Polanyi in *The Great Transformation*, relates how land and labour were commodified through dispossession of commoners; E.P. Thompson and Jeanette Neeson bring to life both the economy, culture and

context erased in the making of natural, legal or historical facts, those dispossessed by the enclosure of land were not mute; they resisted their exclusion from the beginning, as so many continue to resist enclosure in all its forms today.

Blomley reaffirms both the popular resistance to and the material history of enclosures by drawing attention to the role played by a key artefact of that history: the hedge. He notes that, under the sway of the cultural turn, recent “scholars have tended to focus on enclosure as a largely imaginative undertaking produced through a bundle of signs, discourses, and representations.”¹⁰⁹ Recent legal theories of property have likewise tended to treat property as representational, an abstract set of rights, rather than a physical thing.¹¹⁰ To a certain extent Blomley sees these discussions as valid, however, given the longstanding propensity of Western thought to “disavow objects”, he wants to “try to think about property as if things mattered.”¹¹¹

resistance of commoners to the extinguishment of their common rights, in Thompson, *Customs in Common*, and Neeson, *Commoners*.

¹⁰⁹ Blomley, “Making Private Property,” 2.

¹¹⁰ For an array of nuanced but accessible discussions about the various meanings of property, please see Stephen R. Munzer, *A Theory of Property* (Cambridge: Cambridge University Press, 1990). Margaret Jane Radin, *Reinterpreting Property*, Chicago: Chicago University Press, 1993) Carol M. Rose, *Property and Persuasion: Essays on the History, Theory, and Rhetoric of Ownership* (Boulder, Colorado: Westview Press, 1994); Margaret Davies *Property: Meanings, Histories, Theories* (London: Routledge, 2007).

¹¹¹ Blomley, “Making Private Property,” 4. The phrase “disavowel of the object” comes, I think, from Peter Stallybrass. In his article “Marx’s Coat,” Stallybrass brilliantly disenchant us of the notion that ours is a “materialistic” culture, and persuades us of the relationship between capitalism, abstraction and modernity. Classic critiques of abstraction in Christianity, Western philosophy, and of course capitalism, can be found in Marx, Kierkegaard and Nietzsche. Blomley refers us to some of the more recent work on this topic: B. Brown, “Thing Theory,” *Critical Inquiry* 28, no. 1 (2001): 1; Dick Pels, Kevin Hetherington, and Frédéric Vandenberghe, “the Status of the Object: Performances, Mediations and Techniques,” *Theory Culture and Society* 19, no. 5/6 (2002): 1; and Langdon Winner, “Do Artifacts Have Politics?” in *Daedalus* 109, no. 1 (1980): 121-

According to Blomley, this preference for the idea of the non-material is exemplified in the scholarship on enclosure, which has attributed to maps a constitutive role in the process, while overlooking the role of hedges. He recognizes that the map, “in creating a divide between land and law, and between material and ideational realms, may have played a critical role in creating an abstracted view of property”; however, he reminds us that the map “did not, in itself, take the commons from the poor.” While it is true that maps were often prepared for and facilitated the enclosure of lands, hedges were used to demarcate enclosure long before maps.¹¹²

As mentioned above, enclosures and engrossments had been used in English agriculture from at least 1,000 CE.¹¹³ From this time, areas to be protected (either from roaming livestock or wind) were physically bounded either by stones, fences, or, hedges. Whitethorn and hawthorn were the most popular bushes used in making hedges. In fact, Hawthorn, is derived from ‘haga’ - an Old English word meaning both enclosure and hedge.¹¹⁴

Until the late sixteenth century, hedges were a part of the English landscape, and far from being a signal of private property, they were part of the commoning economy: the right of

136.

¹¹² Blomley, “Making Private Property,” 4.

¹¹³ Thirsk, *The Agrarian History of England and Wales*, 54.

¹¹⁴ J. R. Baudry, G. H. Bunce, and F. Burel. "Hedgerow Diversity: An International Perspective on their Origin, Function and Management," *Journal of Environmental Management*, 59 (2000), 3. doi:10.1006/jema.2000.0358, available online at <http://www.idealibrary.com> Also see Briony McDonagh and Stephen Daniels, “Enclosure stories: narratives from Northamptonshire,” *Cultural Geographies* 19, no.1 (2012) 113-114.

customary tenants to collect firewood, berries, or even small animals from hedges was called “hedgebote.” However, as resistance mounted against the practice of enclosure in the late sixteenth century, hedgebote – a right of estover- was increasingly redefined as theft. And the construction of hedges involved ever more elaborate means of deterring attempts to collect from or penetrate them.¹¹⁵ In this way, hedges did not just represent private property, or introduce “space discipline” as maps did, but they also “materialized and enforced” it. Hedges, Blomley suggests, became both the metaphor and the means to impenetrability and “the prevention of misrule.”¹¹⁶

In modernity, boundaries are paradoxical constructions: the protection they offer those inside the boundary ensures a freedom to cultivate and transform the space within. At the same time they represent a limitation, an obstacle to freedom of movement, and an obstacle which can be transgressed. Early modern hedges in England took on this paradoxical character. They allowed enclosing landowners to improve their land without the “obstacle” of the practice of common right. At the same time, they prohibited the free movement of commoners, and were therefore viewed as illegitimate obstructions to their long-standing enjoyment of common rights. But as Blomley puts it, the very materiality of the hedge made it both effective in inhibiting commoner’s movements

¹¹⁵ Roger B. Manning, *Village Revolts: Social Protest and Popular Disturbances in England, 1509-1640* (New York; Oxford University Press, 1988), 26. Manning explains how the construction of hedges reflected the changing purpose of enclosures from the medieval to the early modern contexts. Hedges “...in the medieval period” were “constructed of dead wood...staked and thick ‘plashed’. Dead hedges were distinguished from ‘quick hedges’ or living hedges, which were planted as ‘quick-sets’, or nursery transplants. The plashed or wattle types of dead hedges were always temporary enclosures. But increasing use of quick hedges implied a permanent division of land.”

¹¹⁶ Blomley, “Making Private Property,” 3, 5, 8, 12. Blomley also notes that among theologians and ministers the hedge was a popular metaphor for the prevention of misrule.

and vulnerable to destruction.¹¹⁷ At the turn of the seventeenth century, when the legitimacy of common right was under attack, but the legitimacy of enclosures and private property was by no means established at law or in thought, hedges were at the centre of the struggle to define property.

Hedge breaking, or “hedge-levelling,” as it was often called, soon became, if not a “national pastime,” as Manning quips, at least a common feature in rural protests against enclosure. In response to instances of hedge-levelling, husbandry manuals gave estate owners advice on how to grow hedges “ever higher and thicker, so that not so much as a small bird is able to pass thorowe it, nor any man to looke through it.”¹¹⁸ Gervaise Markham advised:

Know then that if after your hedge is come to sixe or seven yeeres of age, you shall let it grew on without cutting or pruning, that then although it grow thicke at the top, yet it will decay and grow so thinne at the bottome, that not onely beasts but men may runne through it, and in the end it will dye and come to nothing, which to prevent, it shall be good once in seaven or eight yeeres to plash and lay all your Quick-set hedges... For this plashing is a halfe cutting or deviding of the quicke growth, almost to the outward barke, and then laying it orderly in a sloape manner... and then with the smaller and more plyant branches, to wreathe and binde in the tops, making a fence as strong as a wall, for the rooffe which is more then halfe cut in sunder, putting forth new branches, which runne and entangle themselues amongst the olde stockes, doe so thicken and fortifie the hedge, that it is against the force of beasts impregnable.¹¹⁹

Rural protests included other forms of expressing contempt for enclosures, such as setting

¹¹⁷ Blomley, 5. Blomley notes that there were other ironies in the relationship between commoners and hedges: while on the one hand they blocked access to such vital resources as could be acquired by gleaning, and turbovery, they also became a source of fuel and food (branches, berries). Meanwhile the job of erecting the very hedges that would rob them of their living, was assigned to commoners themselves, 11.

¹¹⁸ Conrad Heresbach, *Four Books of Husbandrie*, 1586, quoted in Blomley, “Making Private Property, 12-13.

¹¹⁹ Gervaise, Markham, (1614) “Of Plashing of Hedges,” *The Second Booke of the English Husbandman* (Ann Arbor, MI; Oxford, UK: Early English Books Online & Text Creation Partnership, 2003)

<https://quod.lib.umich.edu/e/eebo/A06927.0001.001?view=toc>.

animals upon enclosed crops, throwing down fences or filling in ditches. But so prominent a feature was hedge-levelling that, Manning says, “after the suppression of the Midland Revolt of 1607 it became axiomatic that those who levelled hedges were bent also upon levelling social distinctions - and it was from this time onwards that the term 'leveller' began to acquire the connotation of political radicalism.”¹²⁰ Popular uprisings aimed at enclosures were not new with the Midland revolt. The sixteenth century witnessed countless uprisings across the country, including the 1549 Kett’s rebellion and the Oxfordshire rebellion of 1596. And while many concerned other social grievances, such as food shortages, the obstruction of common areas by fences or hedges was an increasingly common cause of uprising as the sixteenth century came to a close.¹²¹

There were also many instances where the contest between enclosures and customary rights was played out in the courts of the Star Chamber. McDonagh has studied the cases of litigation of landowners against customary tenants in the Star Chamber in the Yorkshire Wolds region, in order to “ [reclaim] something of the materiality of the events reported in the court “ and to reveal how “enclosure and common rights could be negotiated ‘on the ground.’”¹²² She notes, for example, that:

Some defendants were explicit about the fact that they had removed hedges specifically with the intention of reasserting common rights. For example, Marmaduke Grimston Esq. of Goodmanham submitted two bills to the Star Chamber in 1599 complaining that various inhabitants of the parish had thrown down the fence at Wood Nooke, a close which contained spring and young wood which Grimston had fenced at his own cost. Grimston

¹²⁰ Manning, *Village Revolts*, 30.

¹²¹ Wood, “Kett's Rebellion,” 5.

¹²² Briony A.K. McDonagh, “Subverting the Ground: Private Property and Public Protest in the Sixteenth-century Yorkshire Wolds,” *Agricultural History Review* 57, no. 2 (2009): 191.

complained that in casting down the fence and filling in the ditches, the defendants had laid the close open and beasts had depastured the wood. In their answers, the defendants argued that the ground was a part of the common of Goodmanham which Grimston had caused to be enclosed and fenced for his own profit.¹²³

But in the Midland Revolt of 1607, discontent with the continued injustice of enclosures was expressed on a scale not seen before, with thousands of participants in three midland counties, spreading from Northamptonshire to Warwickshire and Leicestershire, from late April to early June and culminating in the death by hanging of over 50 people.¹²⁴

And of course, it was not only the hedge-levelling commoners who voiced their contempt for enclosures. Together, the published speeches, sermons and tracts of various members of the government, the Church, and the landowning gentry formed a vehement discourse against the practice, deeming it beneficial to covetous landlords, at the cost and suffering of the poor, a threat to the order and health of the commonwealth, and a transgression against Christian morality. By the eighteenth century this would no longer be the dominant opinion among the elite. Enclosures, for the purpose of improvement, would become acceptable.

The Discourse of Improvement

The Defensive Origins of Hard-selling Improvement

Early in the seventeenth century poor tenants and powerful elites seemed to agree that by selfishly pursuing profit, enclosing landlords caused suffering and idleness among the poor, and failed in their duty to God, community and the commonwealth. Ironically, the very force and endurance of

¹²³ McDonagh, "Subverting the Ground, 199.

¹²⁴ Steve Hindle, "Imagining Insurrection in Seventeenth-Century England: Representations of the Midland Rising of 1607," *History Workshop Journal* 66, no.1 (2008), 23, 34. <http://dx.doi.org/10.1093/hwj/dbn029>.

these criticisms may have played a part in the development of a powerful discourse on improvement, one that moved beyond the limited and practical matters of estate management towards an all-encompassing and even revolutionary force in the culture. Like the mushroom which grows up under a root, the obstacle of censure from traditional mores and socio-economic organization only served to make the discourse of improvement stronger. By devoting so much energy to defending the practice, it seems that improvement's advocates were newly persuaded of its benefits, and eventually found ways to use the chief criticisms of the practice to their own advantage.

Authors of surveying and other husbandry manuals were aware of the many claims made against enclosures, and they addressed these criticisms either by refuting their accuracy, or by claiming that surveying, enclosures and improvements could and should be carried out without any anti-social motives or effects. In the preface to Norden's *Surveyors Dialogue* (1607), for example, he reminds his readers that the duty of the surveyor is:

by industry and diligence, (to) produce an exact discovery and performance of the work he undertaketh, to the true information of the Lord, whose benefit and uttermost lawful profit he is to seek, *in a good conscience, dissuading him yet from distasteful Avarice, the greatest blemish that can befall a man, seeking reputation and renown, by his Revenues.*¹²⁵

In general, charges of avarice came from a moral and religious basis, and implied that the improving landlord was unduly concerned for his own welfare above others'. Norden was not alone in carefully dismantling this criticism, by admitting that avarice is a sinful motive that improving landlords should never engage in, while at the same time stressing that to profit from one's land is both lawful and a divinely sanctioned behavior. In fact, it is with this latter point that

¹²⁵ John Norden, *John Norden's The Surveyor's Dialogue (1618): A Critical Edition*, ed. Mark Netzloff, (Farnham, UK: Ashgate publishing, 2010), 9. My italics.

Norden begins his preface. Admitting that, of the two “prescript cares” God has enjoined us to observe, the spiritual is the first, “yet hath he not omitted, to give unto all men an expresse commandment, to be mindful of the second”, the worldly. Therefore (man); “must he not therefore dissolutely neglect his uttermost lawfull indeavour to aduance his owne welfare”, especially when we remember the punishment for our original sin: only “with the sweat of thy face thou shalt eate thy bread, all the days of thy life.” He bolsters this argument by citing all those in the scriptures who worked the land: “Adam digged earth and manured it. (Tubal) wrought metal, Noah planted a vineyard, Abraham, Lot, Moses Elizeus and Amos were shepherds...”¹²⁶ Thus, no one should neglect “the duty in earth which every man, even the greatest oweth unto the Commonwealth, his own family and posterity: And he is censured even by the mouth of God, *Worse than an Infidel*, that neglecteth these duties.”¹²⁷

In these examples from Norden we can see how the very charges against enclosure and improvement provided the foundation of a pro-improvement discourse. In response to the criticism that landlords’ self-interest was sinful Norden found verses and examples in scripture that *authorized* both self-interest and the work of physically reforming the earth’s resources. To the charges that these landlords transgressed against the law, the community and the commonwealth, he made the reverse claim that it was those who neglected to reform the land who failed in their duty to their families and the commonwealth, and who were censured by God as *infidels*! As the discourse of improvement developed, these techniques - turning the criticisms of improving landlords against non-improvers and borrowing authority from scripture- became commonplace.

¹²⁶ Norden, *John Norden’s The Surveyor’s Dialogue*, 7.

¹²⁷ *Ibid*, 7.

The first half of the seventeenth century, the formative stage in the development of the improvement discourse, witnessed the transition from a more traditional socio-economic arrangement in which extensive enclosures were heavily censured to one in which elites tolerated and even approved of the enclosures as symbols of socio-economic reform. It is thus not surprising that advocates of improvement practices at both ends of that period appear to us to hold inconsistent ideas about the sort of society they wanted. Writing in 1607, Norden dismissed critics of surveying and enclosures as “prejudiced” and backward. At the same time, he counseled tenants not to forget their dependence on and their “fearful love” of their lords. Meanwhile, Walter Blith, writing as late as the 1660s, still felt the need to placate critics on the issue of the depopulating effects of enclosure by teaching readers how to “enclose without offence” or “enclose without depopulation.”¹²⁸ Nevertheless, there was a definite shift in the tone of the discourse from the early to the mid-seventeenth century, as ever more of the arguments against enclosure were appropriated and reversed by the advocates. It was now the landlord who *didn't* improve who was selfish, who weakened the nation; it was the commons themselves that caused the poverty and idleness of the displaced tenants.

Ideas and Events Shaping Improvement Discourse

Of course, the need to defend against criticisms of enclosure and improvement was not the only factor leading to the success of the improvement discourse. To return to our mushroom metaphor,

¹²⁸ "I will Demonstrate such a Method, or way of Enclosure (without Depopulation) as men in particular shall have a proportionable Advance thereby, and the Common-Wealth a double or Trebel, and Telage advanced also, and so the one Extreme prevented, and no man hindered, all which shall admit of no other Inconvenience" in Walter Blith, *The English Improver Improved, or The Survey of Husbandry Surveyed*, (London: John Wright, 1652), 75. Google books.

if traditional mores were the root beneath which the mushroom (of improvement) was compelled to grow ever stronger, a wealth of other contemporary events and conditions served as its water, soil, and light. Among the trends and preoccupations which intersected with the idea of improvement were the intellectual, economic and national impact of the colonial conquest of the new world; the growing legitimacy of scientific knowledge and quantitative forms of measurement; a greater disposition towards change due to the political upheaval in the middle of the century and the ethics and beliefs of the highly influential Puritan community.¹²⁹

With the European “discovery” of the new world, British elites were introduced to novel foods, artefacts, ideas, and- most important- a novel awareness of the vastness of the world and the smallness of their own island. Information reaching home about unfamiliar flora and fauna stimulated a curiosity about and desire to accumulate knowledge of the natural phenomena to be found across the globe. The goods brought back from the new world were also seen as new commodities to be traded, and even those goods with little practical use were valuable as exotic luxury commodities, the possession of which communicated high social status. Perhaps more than anything, it was the new global perspective which helped to give the British a self-consciousness of their own nation. This new perspective intersected with the growing esteem for quantitative forms of measurement by the late sixteenth and early seventeenth centuries.

Together, the global perspective and the rise of quantitative measurement inspired in the British a desire to improve *as a nation*. Comparison with other regions of the world and with other

¹²⁹ On the Puritan influence on the discourse of improvement see Paul Slack, *From Reformation to Improvement; Public Welfare in Early Modern England* (Oxford: Oxford University Press, 1999) and more recently, Bernard Stuart Capp, *England's Culture Wars: Puritan Reformation and its Enemies in the Interregnum, 1649-1660* (Oxford: Oxford University Press, 2012).

trading nations, particularly within Europe, fed a growing sense of nationhood and focused the Crown's attention on the relative status of the nation. As the science of comparison, measurement was therefore a key part of the expansion of the idea of improvement from an agrarian to a national concern. And measurement was not only applied to other places and peoples but also to other times. As Paul Slack explains, the idea that something can be made better in the future requires an awareness of and an ability to observe change over time. "English improvement depended on knowledge that it was happening. It could only be perceived, thought about, and articulated as a concept, if people knew something about the present state of England, how it was changing, and how it compared with other countries and other times."¹³⁰

This awareness and observation of change over time contributed to the development of a modern identity and orientation within the world in several ways. As was noted in the introduction, a number of theorists of modernity identify *historical* consciousness as a central characteristic of modernity, and inseparable from this sense of history is a greater vision of the future as conditional and therefore malleable to the human will.¹³¹ The very conditionality of the future invests it with a new meaning. In seventeenth century England, one can see the coexistence, even the confusion of different meanings of the future. For the Calvinists and millenarians who believed that the apocalypse was imminent, the future was awaited with passivity- albeit a passivity laden with great anxiety.¹³² But others, such as Francis Bacon and his successors, began to envision the future and

¹³⁰ Slack, *The Invention of Improvement*, 15

¹³¹ Reinhart Koselleck, *Futures Past: on the Semantics of Historical Time* (Columbia University Press, 2004) and Niklas Luhmann, "The Future Cannot Begin: Temporal Structures in Modern Society," *Social Research* 43 (1976): 140-141.

¹³² Carola Scott-Luckens, "Providence, Earth's' Treasury' and the Common Weal: Baconianism and Metaphysics in Millenarian Utopian Texts 1641–55," in *The Arts of seventeenth-*

providence as requiring active involvement in its unfolding.

While many who thought this way were highly educated and devoted to the reform of the sciences, they were by no means secular. In fact, many of those who took up Bacon's project of the advancement of knowledge, and who shared in an "increasing appetite" for the accumulation of information in the seventeenth century, were deeply motivated by religious belief. Warde explains that for these people,

"The idea of improvement was allied to the argument that man was not simply a passive recipient of nature's bounty, or the force of providence...man's godly mission was not only to harvest what was provided but actively to seek out the truth of how nature functioned, and through this to achieve mastery over it. Nature could be shaped if it could be understood, and this was the task of the true Christian."¹³³

The acquisition of ever greater stores of knowledge was therefore seen by many to be a duty to God. This was particularly true for one strand of Calvinist thought which saw the search for knowledge as the only means by which man could be restored to the perfect condition, and command over nature, that he enjoyed before the Fall.¹³⁴ It was at this time, early in the seventeenth century, that Puritan sermons began to employ the term "improvement" in this sense. The preacher Joseph Hall, for instance, declared that "like as every flame of our materiall fyre, hath a concourse of providence; but we may not expect new infusions; rather know that God expects of us an

Century Science: Representations of the Natural World in European and North American Culture, ed. Claire Jowitt and Diane Watt (London: Ashgate, 2002): 109; James Bennet and Scott Mandelbrot. "Biblical Interpretation and the Improvement of Society: Samuel Hartlib (1600–1662) and his Circle," *Intellectual News* 3, no. 1 (1998): 17.

¹³³ Warde, "The Idea of Improvement," 127.

¹³⁴ Oana Matei, "Gabriel Plattes, Hartlib Circle and the Interest in Husbandry in the Seventeenth Century England," *Prolegomena* 11, no. 2 (2012): 214; and Chloë Houston, *The Renaissance Utopia: Dialogue, Travel and the Ideal Society* (London: Routledge, 2016), 137.

improvement of those habituall graces we have received."¹³⁵

The Hartlib Circle and the Science and Spirit of Improvement

The change which the improvement discourse underwent between the first and second halves of the seventeenth century cannot be attributed to any one source. Nevertheless, there was one group of thinkers, known as the “Hartlib circle,” who did much to turn the tide of elite opinion in its favour. Because of the diversity of its members’ interests and projects, they helped to bring the idea of improvement into the center of nearly every sphere of contemporary thought.

The Hartlib circle were a loose alliance of thinkers who shared a belief in the perfectability of the world and a general desire for social, political and intellectual betterment. Their decades of exchanging of ideas about reform began at Cambridge in the 1630s when Samuel Hartlib, for whom the circle was named, first met Presbyterian minister John Dury and scholar Jan Comenius. All three men were exiles of political or religious strife. Hartlib came to England in 1625 from Prussian Poland, Dury from Elbing and Jan Comenius from Bohemia.¹³⁶ Each of these men had witnessed the devastation of war in Germany, and, hoped therefore, to play a role in restoring

¹³⁵ Warde, “The Idea of Improvement,” 132.

¹³⁶ Mark Greengrass, Michael Leslie, and Timothy Raylor, eds. *Samuel Hartlib and Universal Reformation: Studies in Intellectual Communication* (Cambridge: Cambridge University Press, 2002), 77-82. G. H. Turnbull and Hugh Trevor Roper were the first to explore an archive of Harlib’s papers that had been found at a solicitor’s office in 1932, and thus the first to write about the originating members of the Hartlib Circle, Dury, Hartlib and Comenius. See G. H. Turnbull, *Hartlib, Dury and Comenius. Gleanings from Hartlib’s Papers* (Liverpool: University of Liverpool, 1947) and Hugh Trevor-Roper, ‘Three Foreigners: the Philosophers of the Puritan Revolution’, in *Religion, Reformation and Social Change* (London, McMillan, 1967). 237. Also see the account of Trevor Roper’s research into the three exiles from central Europe in a conference paper by Mark Greengrass, “Three Foreigners: Philosophers of the Puritan Revolution,” in *Hugh Trevor-Roper: the Historian*, Worden, Blair, ed. (London: I.B. Tauris & Co., 2016).

harmony to mankind.¹³⁷ Their spiritual ideals were inspired by the writings of Joseph Mede and Johann Heinrich Alsted which focused on the “apocalyptic expectations of an imminent fulfillment of the millennium, when the Christian perfection of the world and universal peace would at last be achieved.”¹³⁸ But they were equally shaped by Bacon’s project of a universal advancement of knowledge, as is evident in Hartlib’s declaration that “learning ought to be used, and improved as the means to bring us unto the universal knowledge of all things” ...“all things that are, were, or shall be throughout the world may be numbered, and summed up, that nothing escape our knowledge”...“to serve the improvement of our age.”¹³⁹

Hartlib, Dury and Comenius seemed to share the aspiration of applying the reformation of Christianity to objects beyond the sphere of religion itself. Dury and Hartlib were particularly inspired by Comenius’ 1637 tract *Pansophiae Prodomus*, the aim of which was to enact a “universal reformation and enlightenment.” Together, the contacts that the three men made at Cambridge represented virtually every subject: Gabriel Plattes studied metallurgy, mining and husbandry, and was the first to gain a following outside of the immediate circle with his 1639 publication *The Discovery of Infinite Treasure Hidden Since World’s Beginning*; merchant Henry Robinson sought to reform hospitals and to bring about an increase in trading and navigation; banker William Potter wished to follow the example of the Dutch in erecting banking

¹³⁷ Oana Matei, “Gabriel Plattes, Hartlib Circle and the Interest in Husbandry in the Seventeenth Century England,” *Prolegomena* 11, no. 2 (2012): 210.

¹³⁸ Slack, *The Invention of Improvement*, 99; Sarah Hutton, “The Appropriation of Joseph Mede: Millenarianism in the 1640s,” in *The Millenarian Turn: Millenarian Contexts of Science, Politics, and Everyday Anglo-American Life in the Seventeenth and Eighteenth Centuries*, Ed. James E. Force and Richard H. Popkin, (New York: Springer Science & Business, 2001), 1.

¹³⁹ Warde, “The Idea of Improvement,” 138.

infrastructure; Rice Bush wanted to set up employment schemes and free schools across the nation.¹⁴⁰ Other members of the Hartlib circle, such as Kentish squire Cheny Culpeper, were more focused on aligning the groups' goals with millenarianism. Meanwhile, Benjamin Woresly and William Petty would become architects of the settlement of Ireland, particularly Petty, whose science of "Political Arithmetik" first applied techniques of economic and demographic statistical analysis to statecraft.¹⁴¹

Hartlib himself was engaged in a diverse range of projects, from the political and national transformations outlined in his treatises *The Parliament's Reformation* (1646) and *England's Reformation* (1647), to the spiritual ideals of Comenius' *Pansophia*, and the more practical plans for an "office of address" in every town - a place where anyone could go for information, from job vacancies to the latest academic theories.¹⁴² Together, this coalition of thinkers would conceive of projects for reforming medicine, social welfare, trade, mathematics, metallurgy, agriculture, chemistry, education, politics, theology and many other disciplines. By the 1660s there was an outpouring of books linking the idea of improvement with all of these areas and more. As J.T.Young puts it, the Hartlib circle had "a definable centre but an almost infinitely extendable periphery" for "as soon as one looks any further than this from the centre, the lines of communication begin to branch and cross, threading their way into the entire intellectual

¹⁴⁰ Slack, *The Invention of Improvement*, 99-100.

¹⁴¹ Steve Pincus, "From Holy Cause to Economic Interest: The Study of Population and the Invention of the State," in *A Nation Transformed: England After the Restoration*, ed. Alan Houston and Steve Pincus, 272-298 (Cambridge: Cambridge University Press, 2001), 272.

¹⁴² Slack, *The Invention of Improvement*, 100-102.

community of Europe and America. ”¹⁴³

At the centre of the circle was Cambridge, and as a site where many of the nation’s elite congregated, it was not surprising that some of the contacts made there by the Hartlib circle would one day become powerful allies in Parliament.¹⁴⁴ In this way, at least some of the Circle’s various projects might come to fruition in social and economic policy. Nevertheless, it was not merely on a practical level, through specific projects or political influence, that the Hartlib circle left its mark. Rather, as Slack says, it was in “their influence on public attitudes and sometimes on private practice,” especially in the area of agriculture, “the arena where the private profits made from inventions and improvements had for a century been defended because they promoted the general good.”¹⁴⁵

Looking back at the cultural suspicions towards improvement evident in the 1640s, commentators in the latter decades of the century could observe the massive influence that the

¹⁴³ J.T. Young, *Faith, Alchemy and Natural Philosophy: Johann Moriaen, Reformed Intelligencer, and the Hartlib Circle* (London: Routledge, 1998), 248. It should be noted that a considerable number of women were part of this intellectual community, although their contributions have largely been forgotten. For recent scholarship which revives their legacy, see Carol Pal, *Republic of Women: Rethinking the Republic of Letters in the Seventeenth Century*, Vol. 99 (Cambridge: Cambridge University Press, 2012); Carol Pal, “Accidental Archive: Samuel Hartlib and the Afterlife of Female Scholars,” *Archival Afterlives: Life, Death, and Knowledge-Making in Early Modern Scientific and Medical Archives*, Vol 23, ed. Vera Keller, Anne-Marie Roos, and Elizabeth Yale (Leiden, Netherlands: Brill, 2018); Michelle Marie DiMeo, “Katherine Jones, Lady Ranelagh (1615-91): Science and Medicine in a Seventeenth-century Englishwoman’s Writing,” (PhD diss., University of Warwick, 2009); DiMeo, Michelle. ““Such a Sister Became Such a Brother’: Lady Ranelagh’s influence on Robert Boyle,” *Intellectual History Review* 25, no. 1 (2015): 21; and Evan Bourke, “Female involvement, Membership, and Centrality: A Social Network Analysis of the Hartlib Circle,” *Literature Compass* 14, no. 4 (2017).

¹⁴⁴ Slack, *The Invention of Improvement*, 93.

¹⁴⁵ *Ibid*, 106.

Hartlib circle had had on cultural reception of the idea of improvement. John Aubrey, for example, remembered that the earlier attitude held that it was a “strange presumption” to “attempt improvement of any knowledge whatsoever, even of husbandry itself, they thought it not fit to be wiser than their fathers, and not good manners to be wiser than their neighbours.”¹⁴⁶

If the culture in the 1640s had been adverse to change or progress in general, it was at least as uncomfortable with the deliberate pursuit of material wealth. As Yamamoto points out, this was not helped by the flurry of “spurious ‘projects’” and “bogus schemes” in the Stuart period, which “emerged under the colour of serving the commonwealth” but whose authors were intent on their own financial gain.¹⁴⁷ But members of the Hartlib circle were not reluctant to place material progress at the centre of their visions of a reformed society. Potter claimed that “providence must now bless this nation with greater riches and prosperity than ever before” while Platte called for “a college of experts in medicine, trade, husbandry, fishing and new plantation’s, bringing plenty and prosperity *before* judgment day.”¹⁴⁸ Benjamin Worsely, as secretary of the Counsel of Trade in 1649, told Hartlib that, together with improved agriculture and fisheries, the imports from the Virginian plantations “might make England in a few years the richest and happiest country in the world”¹⁴⁹ Thus it was by linking material progress with national and spiritual progress that the

¹⁴⁶ Ibid, 108. For an account of the suspicion which fell upon projectors, and thus upon the inventions and plans of the Hartlib circle, see Koji Yamamoto, “Reformation and the Distrust of the Projector in the Hartlib Circle,” *The Historical Journal*, 55, 2 (2012): 375.

¹⁴⁷ Yamamoto, “Reformation and the Distrust of the Projector,” 380- 82.

¹⁴⁸ Slack, *The Invention of Improvement*, 100. Such an idea, that wealth and riches could be enjoyed in this world, certainly went against both the traditional Christian- and even Puritan – notion of suffering now, in the faith that one’s reward would come later.

¹⁴⁹ Ibid, 96.

Hartlib circle helped to overcome the cultural suspicion of wealth.¹⁵⁰

Of course, the political upheaval of the middle seventeenth century also made the culture more receptive to the idea of change. With the organization of the body politic and the authority of the king now brought in question, it seemed, in Cheney Culpeper's words, that "the monopoly of trade, the monopoly of Equity, the monopoly of matters of conscience and scripture... all these & many more...we shall have in chace...thus will Babylon tumble, tumble, tumble, tumble."¹⁵¹ In the politically fluid environment of the interregnum years, the Baconian method of fact determination provided all the direction needed for the generation of improvers succeeding him. Because the empirical and experimental approach to knowledge was intended to minimize the human tendency to prejudice and partiality, Bacon's legacy was, in Macaulay's words, "the liberation of the human mind from the yoke of Authority." This independence of knowledge from the influences of authority and tradition was renewed and sustained with the formation of the Royal Society in 1660.¹⁵² The Royal Society grew out of an informal, "invisible college," a network of thinkers similar to that of the Hartlib circle, but with a greater emphasis on "carrying forward Bacon's programme for reforming natural philosophy."¹⁵³ The motto of the Royal Society is

¹⁵⁰ Ibid, 112. According to Slack the idea of "happiness," not as a rare event but as a general and continuing state of contentment which could be sustained, took hold in second half of the seventeenth century. Focusing on the conjoined conditions of wealth and happiness may have served as a "strategy as well as rhetorical function in the language of the Hartlib group" for deflecting charges of "endorsing avarice" which were often attached to any discourse of material progress. 112-113.

¹⁵¹ Culpeper quoted in Yamamoto, "Reformation and the Distrust of the Projector," 375.

¹⁵² J.B. Bury, *The Idea of Progress: an Inquiry into its Origin and Growth* (New York: Dover Publications, 2014), 96.

¹⁵³ Sarah Hutton, *British Philosophy in the Seventeenth Century* (Oxford, Oxford

Nullius in verba, which translates as “take nobody’s word for it.” According to the Royal Society’s website, ‘It is an expression of the determination of Fellows to withstand the domination of authority and to verify all statements by an appeal to facts determined by experiment.’¹⁵⁴

As much as the anarchic political events between the 1640s and 1660s contributed to a new cultural tolerance for change and brought into question the permanence of any rule, the nature of the change envisioned or actualized by improvement was anything but anarchic. That is, improvement did not mean the complete overthrow of authority, traditional or otherwise; nor was it revolutionary in the sense that it aimed to replace one fixed social system with another. As Polanyi, E.P. Thompson and others have shown, the effects of the improvement of property were certainly dramatic and sudden from the point of view of those whom it uprooted from land and habitat.¹⁵⁵ But the idea of improvement itself was not consistent with sudden or dramatic transformation. Instead, it was closer to Bacon’s description of the advancement of knowledge as

University Press, 2015), 170. The Society received royal approval in 1663, when it was renamed The Royal Society of London for Improving Natural Knowledge. Among the key figures in the Royal society were Robert Boyle, Richard Hooke, and John Wilkins. However, the Royal Society attracted fellows from related networks, such Hartlib Circle, the Welbeck Circle, the Oxford Experimental Club and later, its ‘sister society’ the Dublin Philosophical Society, 170-174.

¹⁵⁴ The Royal Society, “History of the Royal Society,” <https://royalsociety.org/about-us/history/>

¹⁵⁵ For two seminal accounts of how enclosure and improvement led to the dispossession of English commoners, see E.P. Thompson, *Customs in Common: Studies in Traditional Popular Culture* (New York: The New Press, 1991) and Karl Polanyi, (1944) *The Great Transformation: The Political and Economic Origins of our Time* (Beacon Press, Boston, 2001). On the dispossession of inhabitants of colonized lands by the same means see Sarah Irving, *Natural Science and the Origins of the British Empire* (London: Routledge, 2015); Toby Christopher Barnard, "The Hartlib Circle and the Cult and Culture of Improvement in Ireland," in *Samuel Hartlib and Universal Reformation: Studies in Intellectual Communication*, ed. Mark Greengrass, Michael Leslie, and Timothy Raylor, 281-297 (Cambridge: Cambridge University Press, 2002); and Cole Harris, "How Did Colonialism Dispossess? Comments from an Edge of Empire," *Annals of the Association of American Geographers* 94, no. 1 (2004): 165. <http://www.jstor.org/stable/3694073>.

the establishment of “progressive stages of certainty.”

The Idea of Endless Expansion

Individuals associated with the Hartlib circle and the Royal Society may have had particular projects which they wished to bring to fruition immediately. Yet, the overall pace and shape of the change envisaged as Improvement was gradual, progressive and open-ended. Take for instance, the contradictory desires of the many improving advocates who were fervidly nationalist: even while they were determined to increase England’s wealth and power across the globe, they repeatedly expressed the belief that beyond these immediate benefits, schemes to accumulate all forms of knowledge or to better all kinds of conditions were for the ultimate benefit of mankind as a whole. Bacon, despite his powerful political and legal position, and obvious interest in improving England, was consistent in describing his projects as aimed at a *universal* betterment of mankind.¹⁵⁶

What was new about the larger objective of improvement was the notion that modest or practical achievements would build upon one another, and that the imagined beneficiaries of these accumulated improvements lived in an indefinite realm of the future. Thus, whatever their personal beliefs in a looming judgment day, or in the finite nature of the earth's resources, the proponents of improvement were beginning to speak of it as an ongoing, cumulative, project, which was, if

¹⁵⁶ In *Novum Organum*, Bacon distinguishes “three grades of ambition in mankind. The first is of those who desire to extend their own power in their native country, a vulgar and degenerate kind. The second is of those who labor to extend the power and dominion of their country among men. This certainly has more dignity, though not less covetousness. But if a man endeavor to establish and extend the power and dominion of the human race itself over the universe, his ambition (if ambition it can be called) is without doubt both a more wholesome and a more noble thing than the other two.” Bacon, *Novum Organum*, 55.

not endless, open-ended.¹⁵⁷ That is, both the knowledge that could be uncovered and the designs that could be made in order to achieve wealth and wellbeing for the nation, and for humanity, were now being seen as potentially infinite.

Whatever the doubts and contradictions attending the notion, the very prospect of infinite improvement seemed to invoke a twofold response which reverberated through the improvement discourse thereafter. A world without limits could mean either potential abundance or a formless void. Improvers saw that only a commitment to the former would liberate us from the latter.

Fertility and Abundance in Agriculture, Science and Economy

Considered from this view, the ubiquitous references to “fruitfulness” and “fertility” in the improvement discourse are particularly meaningful. Such references can also be found populating the surveying manuals of the previous century. An increase in the productivity of one’s land was, of course, chief among the promised outcomes of surveying. Once landlords had a knowledge of the extent, make-up, and current usage of their land, they could target areas that had the potential for greater productivity and apply to them the latest practices in husbandry. But intensive cultivation or redevelopment of land could not be achieved when it was being used for multiple purposes by multiple parties according to their common rights. Thus, enclosures were needed to physically and symbolically restrict access to the land, for the exclusive use of the improving landlord.

In light of repeated episodes of dearth, food shortages, and the accompanying social protests, it was no wonder that fertility and abundance were national preoccupations in the

¹⁵⁷ Warde, “The Idea of Improvement,” 128.

sixteenth century and seventeenth centuries. This cultural motif had another source. According to McCormick, many believed that an increase in population signaled the health and prosperity of the commonwealth.¹⁵⁸ This concern for demographic increase may have been an inheritance from the devastation of the population in fifteenth century plague, but it was also a preoccupation rooted in Protestant adherence to Scriptural directives calling for the multiplication of mankind.¹⁵⁹

In much of the seventeenth century improvement literature, the fruitfulness of mankind was conflated with agricultural bounty and the material wealth of the nation. Together, these were proof that God's grace had been granted.¹⁶⁰ God's grace had been withheld after the Fall of Adam and Eve, when he had expelled them from abundant Eden. Only by cultivation and industry could mankind be redeemed from its original sin, and reclaim Edenic bounty. As Tory Clergyman, Timothy Nourse put it: "the same spot of ground, which some time since was nothing but heath and desart, and under the original curse of thorns and bryers, after a little labour and expence, seems restor'd to its primitive beauty in the state of Paradise."¹⁶¹

Cultivation was not only a metaphor for redemption through toil. The compulsion to cultivate was also expressed in terms which evoked an older idea about the hidden, sacred order of the universe. To cultivate the land was to dig down through the disordered layers of the earthly existence until one reached the fundamental and divine structure beneath. In Chapter two we saw

¹⁵⁸ Ted McCormick, "Who were the pre-Malthusians?" in *New Perspectives on Malthus*, ed. Robert J. Mayhew, 25-51 (Cambridge, Cambridge University Press, 2016), 36.

¹⁵⁹ McCormick, Ted. "Political Arithmetic and Sacred History: Population Thought in the English Enlightenment, 1660–1750." *Journal of British Studies* 52, no. 4 (2013): 842-3.

¹⁶⁰ Slack, *The Invention of Improvement*, 141, 197.

¹⁶¹ Nourse, quoted in Warde, "The Idea of Improvement," 139.

two earlier examples of this idea that reality is veiled, buried or beyond the capacities of sight: the late-medieval belief that numbers held a sacred meaning, and the sixteenth century claims by surveying advocates that geometry and measurement could reveal the pre-existing order beneath the soil.¹⁶²

“Cornucopianism,” the belief that an abundance of knowledge and wealth could be infinitely divined from the earth, ran through much of the seventeenth century improvement literature.¹⁶³ Remember, for example, that the title of Gabriel Plattes’ treatise on the mining and refinement of minerals was *The Discovery of Infinite Treasure Hidden Since World’s Beginning*. Similarly, Walter Blith, in his *England’s Improvement Improved*, declared that we must “draw forth the earth to yeeld her utmost fruitfulness.” As Warde puts it, labour was the “the means by which the fertility hidden by God in the soil could be unlocked” (in contrast idleness meant “barrenness and penury”).¹⁶⁴ Of course, if the soil and its fruits were legally and physically

¹⁶² Crosby, *The Measure of Reality*, 35, Srnicek, “Abstraction and Value, 75.

¹⁶³ Fredrik Albritton Jonsson, “The origins of Cornucopianism: A preliminary genealogy.” *Critical Historical Studies* 1, no. 1 (2014): 158. “Cornucopianism” is the term given to those today, who believe that either the earth’s resources, or technological fixes will endlessly defer climate catastrophe. According to Jonsson, in *Cornu Copia* (1652), Samuel Hartlib himself offered up a host of new inventions and plans, including methods for restoring barren or overworked soil “to far greater fruitfulness than ever they yielded before.”⁷ Also see William R. Newman, *Promethean Ambitions: Alchemy and the Quest to Perfect Nature* (Chicago: University of Chicago Press, 2004), 270–71. For a more recent treatment of the subject see Justin Robert Niermeier-Dohoney, *A Vital Matter: Alchemy, Cornucopianism, and Agricultural Improvement in Seventeenth-Century England* (Chicago: University of Chicago Press, 2018). For the effect that such schemes for divining abundance had on the inhabitants and environments in the New World, see Joyce Chaplin, *An Anxious Pursuit* (Chapel Hill: University of North Carolina Press, 1993), 27–29; Jack P. Greene, *The Intellectual Construction of America* (Chapel Hill: University of North Carolina Press, 1997), 47, 63; and Karen Ordahl Kupperman, *The Jamestown Project* (Cambridge, MA: Belknap, 2009).

¹⁶⁴ Warde, “The Idea of Improvement,” 140

accessible for use by multiple parties, such intensive divining of the earth's fertility would be compromised; thus the need to enclose land as exclusive private property before improvement could commence.

Indeed, the soil itself became a site for intensive study and improvement. Gervaise Markham, writing in the early seventeenth century, was among the first to stress the importance of soil in agricultural improvement. According to Warde, he "introduced a novel logic into agronomic writing; traditional practices and yields could be bettered by skilful and informed manipulation of the qualities of the soil and with the explicit intent to convert the 'sterile' soils of the kingdom to tillage."¹⁶⁵ In the mid-century Petty, Boyle, Platte, Culpeper and a number of other thinkers associated with either the Hartlib circle or the Royal society, were drawn to the study of soil as an extension of their involvement in the fledgling sciences of agronomy, experimental chemistry, and mineralogy.¹⁶⁶ William Petty, for example, was "entranced by the transformational notions of chemistry" in the way that "barren grounds made fruitfull, wet dry, and dry wet."¹⁶⁷ The improvement of the soil could, in Markham's words, bring "the most vilde and barrenest grounds in this kindome...to as great fertility and fruitfulness inn the bearing and bringing forth of corne, as the best and most richest soyle under the suune can doe, and that...with as little cost and much lesse labour."¹⁶⁸ In his *English Improvement Improved*, Blith was also concerned about "enhancing the productivity of the soil," but by this time "productivity" was as much about an

¹⁶⁵ Ibid, 136.

¹⁶⁶ Jonsson, "The Origins of Cornucopianism," 158.

¹⁶⁷ Warde, "The Idea of Improvement," 142.

¹⁶⁸ Ibid, 136

increase in economic profit, as it was as it was the increased yields of crops.¹⁶⁹

The Appetite for Accumulation

Metaphors related to cultivation and organic growth were not exclusively used in relation to agricultural improvement. Bacon, for instance, often referred to the evidence and consensus arrived at by experimental natural philosophy as ‘fruits’: “Wherefore, as in religion we are warned to show our faith by works, so in philosophy by the same rule the system should be judged of by its fruits, and pronounced frivolous if it be barren, more especially if, in place of fruits of grape and olive, it bears thorns and briers of dispute and contention.”¹⁷⁰ Likewise, In *The Great Instauration*, he distinguished between “experiments of light” and “experiments of fruit” suggesting that experiments should not only shed new light on an object of study, but that they should be productive of new and useful knowledge.¹⁷¹

The way to realize the potential fruitfulness of knowledge was to harvest ‘facts’ of all kinds. Facts arrived at through observation or experience were the fruits- the accumulated proof-of improvement. Slack notes that, while an extensive collection of information had already begun in the late sixteenth century, with the surveys by Elizabeth’s cartographers and the publication of Harrison’s “Description of England,” the seventeenth century witnessed “increasing appetite for its accumulation.”¹⁷² At the turn of the seventeenth century the most basic of England’s conditions,

¹⁶⁹ Ibid, 140

¹⁷⁰ Bacon, *Novum Organum*, (LXXIII) 25-6.

¹⁷¹ Bacon, *The Great instauration*, 433.

¹⁷² Slack, *The Invention of Improvement*, 16.

such as its size, wealth, and population, were not known. By the end of that century these conditions “had all been calculated within acceptable margins of error and were widely known.”¹⁷³

One area where this appetite for information was first demonstrated was in the economic sphere. The gathering of economic facts was fuelled both by the example of a “systematic search for hard facts” in French and Italian political theories and by the Crown’s concern for how England measured up with European trading rivals. According to Slack, the “1620s were formative for English economic thinking” and witness to the “ascendance of an economic conception of the purpose and power of the state.” That is, people were beginning to assess England’s power, vis-à-vis its neighbours, according to its economic wealth. Detailed analyses of the balance of trade revealed the crucial role of “seaborne and international commerce” in creating England’s wealth.

¹⁷⁴ But agricultural land could also generate wealth. From the mid-seventeenth century, members of the Hartlib circle, among others, paid increasing attention to disseminating new techniques in husbandry for extracting the most value from the land. ¹⁷⁵

Like the Hartlib Circle, the Royal Society contributed to the accumulation of information of all kinds. ¹⁷⁶ The Society, which was founded in 1660, followed Bacon’s example both in the

¹⁷³ Ibid, 3,

¹⁷⁴ Ibid, 88-89.

¹⁷⁵ Matei, “Gabriel Platte,” 210-16, 216: According to Hartlib, husbandry was “the most profitable Industry unto Humane Society; wherein the providence, the Power, the Wisdom and the Goodness of God, appears unto man more eminently then in any other way of Industry,” 216.

¹⁷⁶ William Petty was among the founding members. Two years later, Robert Boyle and Christopher Wren joined the Society. There was a fair amount of overlap in membership and objectives between the Royal Society, the Hartlib circle, the “invisible college,” Gresham College, the Dublin Philosophical Society and other intellectual networks in the mid seventeenth century. One of the major differences between the Hartlib circle and the Royal Society, was that religious ideas were less explicitly tied to the objectives of the latter. See Charles Webster,

spirit of collaborative knowledge and in the method. Just as Bacon had “advised travelers to collect information related to antiquities, libraries, fortifications etc.,” Petty sought traveler’s collected data on “wages, currency, prices, interest rates, and rents” and Boyle, on “natural history, climate, diseases.”¹⁷⁷ The Royal Society also sought to improve choreographies and travelers’ reports “by promoting a more uniform and systematic mode of organizing properly observed ‘matters of fact.’¹⁷⁸ To achieve this they “disseminated ‘articles of inquiry’ that provided grids on which travelers might organize their observations.”¹⁷⁹ They also published and distributed questionnaires and periodicals. The result was a “nationwide intellectual community” dedicated to compiling data from across the globe.¹⁸⁰ As Hooke soon recognized, without the strict division of data into separate categories, the abundance of all of these facts would be chaotic rather than useful.¹⁸¹ The categories and disciplines by which the Royal Society organized its harvested facts, have become themselves, a major part of their legacy.

Doubting Endless Progress: Cyclical History and Degeneration

If this bounty of gathered facts was meant to provide proof of the nation’s historical and international progress, then that was not always the way it played out in reality. While Petty’s 1665

Samuel Hartlib and the Advancement of Learning (Cambridge: Cambridge University Press, 1970), 70.

¹⁷⁷ Slack, *The Invention of Improvement*, 32; on the contribution of such travellers to the collection of data in the period see Daniel Carey, "Compiling nature's history: travellers and travel narratives in the early Royal Society." *Annals of Science* 54, no. 3 (1997): 269.

¹⁷⁸ Shapiro, *A Culture of Fact*, 72.

¹⁷⁹ *Ibid*, 72-3

¹⁸⁰ Slack, *The Invention of Improvement*, 20.

¹⁸¹ Shapiro, *A Culture of Fact*, 73.

Verbum Sapienti, and 1670 *Political Arithmetick* presented quantitative proofs of England's material and economic progress, other data gathered by both himself and the demographer John Graunt showed that England's population was stagnating and even declining.¹⁸² This was a disappointing discovery for those –William Petty among them- who thought material progress and population increase went hand in hand.¹⁸³ The irony was that the stagnation of the population may have been the very factor responsible for a higher per capita income.¹⁸⁴

While the Hartlib circle had done much to shift the culture from one of nostalgic longing for previous traditions to one that was more accepting of improvement and change, there were nevertheless many who doubted that progress could continue without limits. In the 1660s and 70s economic depression and commercial pressures kindled a new “fear of finitude,” a fear that there was a “finite limit to the nation's economic growth” and that stagnation or even a decline in fortunes was imminent. Some were even concerned that politically the nation might “descend back into the chaos of the 1640s.”¹⁸⁵ Among other factors supporting this pessimistic view were contemporary theories about economic growth in a world with finite resources and about the nature

¹⁸² Slack, *The Invention of Improvement*, 138-140 and Andrea Lynne Finkelstein, *Harmony and the Balance: an Intellectual History of Seventeenth-Century English Economic Thought* (Ann Arbor, MI: University of Michigan Press, 2009), 123. For a detailed account of Petty's method of measuring national wealth see Paul Slack, “Measuring the National Wealth in Seventeenth Century England, *Economic History Review* 57, no.4 (2004): 607.

¹⁸³ Ted McCormick, “Who were the pre-Malthusians” in *New Perspectives on Malthus*, ed. Robert J. Mayhew, (Cambridge, Cambridge University Press, 2016), 44. Also see Adam Fox, “Sir William Petty, Ireland, and the Making of a Political Economist, 1653-1687,” *The Economic History Review* 62, no. 2 (2009): 397.

¹⁸⁴ Slack, *The Invention of Improvement*, 140.

¹⁸⁵ *Ibid*, 170

of historical change. There has been wide consensus among historians that many seventeenth century thinkers “took it for granted that the world’s supply of raw materials and markets was strictly finite, and thus believed that the economic growth of one nation came at the expense of its competitors.”¹⁸⁶

Doubts about the progress of the English state were also informed by a popular view that all forms of government were subject to a cyclical pattern of history which involved “birth, growth, decay, and death.”¹⁸⁷ This view of history had antecedents in both the classical Greek idea of cyclical history, *anakuklosis*, and in the Christian notion that the world of the flesh was inevitably subject to the “relentless decay of time.”¹⁸⁸ For Slack, the “fear of finitude” that emerged in the mid to late seventeenth century England can be expressed as the idea that “whatever the immediate circumstances, material progress could never be endlessly sustainable, and must soon come to a halt if it had not already done so.”¹⁸⁹ Historical and economic studies seemed to support this idea.

¹⁸⁶ Linda Colley, *Britons*. (New Haven: Yale University Press, 1992), 62. Steve Pincus has challenged this view, arguing that, while many Tory politicians, clergy and mercantile writers did see trade as a competition for finite resources, many thought otherwise. Whereas Tories held that “property was finite and tied to the land and the products of the land” Whigs argued that “human labor created property, and that therefore it was possible to generate infinite economic growth.” See Steve Pincus, “Rethinking Mercantilism: Political Economy, the British Empire, and the Atlantic World in the Seventeenth and Eighteenth Centuries,” *The William and Mary Quarterly* 69, no. 1 (2012): 24, 28. Many of the Hartlib group, being “cornucopianists” would have aligned themselves with this belief in infinite economic growth.

¹⁸⁷ Finkelstein, *Harmony and the Balance*, 223-4.

¹⁸⁸ Arthur Herman, *The Idea of Decline in Western History*, (Toronto: Simon and Schuster, 2010), 20.

¹⁸⁹ Slack, *The Invention of Improvement*, 191. Slack likens this view to the theory of the stationary state. The Stationary state was a term coined by Adam Smith, in *The Wealth of Nations*, to describe a state that, though wealthy, has reached “a point at which it could advance no further.” He explains that he borrowed the term “because it serves to summarize the anxieties about potential

One unhappy sign that material progress was not all that it appeared to be was that the problem of poverty persisted, and if one took account of the rising poor rates across the nation, it was in fact increasing.¹⁹⁰ And even if per capita wealth was increasing, there was plenty of historical precedent to suggest that a reversal could not be avoided. The ancient Empires enjoyed by Rome and Athens showed a pattern of giddy growth leading up to a peak of cultural and political supremacy, only to be followed by an inglorious decline. There were contemporary examples of this cycle too: with the Spanish Succession in the 1690s, Spain's once great empire appeared ready to crumble. Slack explains that "Cyclical models were implicit in contemporary histories of trade, which showed the 'commercial ball' being tossed from one place to another..." thus, "many countries had 'degenerated from the great achievements of virtue and industry.'"¹⁹¹

As Slack notes, support for the idea that progress was always followed by a sharp decline also came from one side of a debate which raged across Europe at the end of the seventeenth century: the Quarrel of the Ancients and the Moderns.¹⁹² Originally a dispute between literary critics in France, the quarrel came to revolve around the question of which era could claim literary and artistic superiority: the Ancients or the Moderns. Those arguing on the side of the Ancients averred that no modern work could surpass the beauty and wisdom of classical literature, particularly its poetry, while those on the side of the Moderns countered that, just as modern

checks to economic growth which had been aroused by circumstances earlier in the century, as we have seen, and which were sharpened by the events of the 1690s."¹⁹¹

¹⁹⁰ Alexandria Shepard, "Poverty, Labour and the Language of Social Description in Early Modern England," *Past and Present* 201, no. 1 (2008): 56. Tom Arkell, 'The Incidence of Poverty in England in the Later seventeenth Century,' *Social History* 12, no. 1 (1987), 23.

¹⁹¹ Slack, *The Invention of Improvement*, 193.

¹⁹² *Ibid*, 194.

science had surpassed the ancients, so could contemporary literature and other forms of knowledge achieve an enlightenment unknown in antiquity.¹⁹³ What was fundamentally at issue in the Quarrel was the nature of historical change itself. Did all civilizations rise and fall according to a cyclical model as those in antiquity did, or could they move ever forward and upward in an endless linear progression?¹⁹⁴ In England, the discoveries of the Royal Society and the role of improvement in amassing greater wealth for the nation were interpreted by some as proof of historical progression. But others, such as William Temple and Jonathan Swift, saw these developments as proof of the degeneration of traditional values. The poet Dryden captured this sense of degeneration in 1683, when he lamented that “not only the Bodies but the Souls of Men, have decreas'd from the vigour of the first Ages. How much better Plato, Aristotle, and the rest of the Philosophers understood nature; Thucydides and Herodotus adorn'd History; [and] Sophocles, Euripides and Menander advanc'd Poetry, than those Dwarfs of Wit and Learning who succeeded them in after times.”¹⁹⁵

While anxieties about degeneration were not unique to England in the late seventeenth century, there they constituted a counter-discourse to improvement. Some of those witnessing the unprecedented rise in luxury consumption felt uneasy about the true cost of material prosperity. Such critics viewed the new taste for luxury as a sign that the commonwealth was falling into vice

¹⁹³ Ibid, 199-201; and Sara E. Melzer, "Time, Myth and the Quarrel between the Ancients and the Moderns: Racine and Fontenelle," in *Time: Sense, Space, Structure*, ed. Nancy van Deusen and Leonard Michael Koff, (Leiden: Netherlands, BRILL, 2016), 261-2. For more detailed accounts of the dispute see Paul A. Rahe, *Republics Ancient and Modern, Volume II: New Modes and Orders in Early Modern Political Thought* (Chapel Hill, NC: UNC Press Books, 2017); and Joseph M. Levine, *Between the Ancients and the Moderns: Baroque Culture in Restoration England* (New Haven: Yale University Press, 1999).

¹⁹⁴ Melzer, "Time, Myth and the Quarrel," 261.

¹⁹⁵ Dryden, quoted in Levine, *Between the Ancients and the Moderns*, 75.

and corruption.¹⁹⁶ This was a period of self-examination, in which the “Condition of England” was the subject of uneasy debate and greater affluence was seen by some, such as Charles Povey, as the cause and not the cure for “The Unhappiness of England.”¹⁹⁷ Yet, while the discourse against degeneration and the vice of luxury consumption was never wholly vanquished, by the end of the seventeenth century they were weakened by new conditions and new arguments that came to the fore.¹⁹⁸

Whereas the pursuit of profit was seen by many at the start of the century as avaricious, and in the case of enclosing landlords, an endangerment to the health of communities and the commonwealth, by the latter decades of the century such self-interest was now being recast as a “public good.” This reversal was achieved, in part, by the “domestication” of consumption. When luxury goods such as coffee and tobacco, were foreign imports, it was reasonable to argue that their consumption weakened the economic health of the commonwealth by benefiting other trading nations. But, when cheaper versions of some goods were produced ‘at home’, and others goods such as tobacco were produced under colonial rule, the goods were considered domestic.¹⁹⁹ Under these new conditions then, some contemporary thinkers began to boldly argue that the consumers

¹⁹⁶ Finkelstein, *Harmony in the Balance*, 80-81.

¹⁹⁷ Slack, *The Invention of Improvement*, 129-30; 204-5.

¹⁹⁸ Luxury consumption was the subject of fierce debate well into the eighteenth century, and would be the subject of Bernard Mandeville’s *Fable of the Bees* in 1714. For more on this topic see Linda Levy Peck, *Consuming Splendor: Society and Culture in Seventeenth-Century England* (Cambridge: Cambridge University Press, 2005) Maxine Berg and Elizabeth Eger, eds., *Luxury in the Eighteenth Century: Debates, Desires and Delectable Goods*. Springer (London: Palgrave MacMillan, 2003).

¹⁹⁹ Maxine Berg, “In Pursuit of Luxury: Global History and British Consumer Goods in the Eighteenth Century,” *Past and Present*, 182 (2004): 135.

of luxury goods were enriching the commonwealth. For example, John Houghton, a fellow of the Royal Society and a writer of tracts on agriculture and trade, argued that such consumers inspired others to acquire wealth, thereby stimulating a general improvement of productivity. The very insatiability of consumption meant that this trend would continue “till they [the English] engross the trade of the universe.”²⁰⁰ A similar theory was put forward by Barbon, who reasoned that “the wants of the mind,” like the resources of the earth, were infinite and thus “can never be consumed.” Therefore, the pursuit of such desires would act as a “perpetual spring” keeping “the great Body of trade in Motion.”²⁰¹ In fact, anticipating Adam Smith, Barbon argued in his ‘moral essays’ that self-interest would promote both economic growth and social cohesion. Thus, Slack explains, “the ‘self-love’ which a speaker on the Enclosure of the Commons had considered inimical to the common good in 1597, in 1669, was now presented by Barbon as promoting social harmony and material progress.”²⁰²

William Petty and the Accumulated Proofs of Progress

If the promotion of self-interest and consumption as economic virtues helped to quell fears of moral degeneration, the prognoses of economic degeneration were countered with quantitative proofs to the contrary. According to Slack, it was William Petty’s 1670 book *Political Arithmetick* that most successfully demonstrated the facts of economic improvement. In *Political Arithmetick*, Petty drew on his knowledge of mathematics and physiology to produce a quantitative survey of the progress of the nation.²⁰³ Expressing himself not with “superlative Words, and intellectual

²⁰⁰ Slack, *The Invention of Improvement*, 143.

²⁰¹ Finkelstein, *Harmony in the Balance*, 211

²⁰² Slack, *The Invention of Improvement*, 152-3.

Arguments” but “in Terms of Number, Weight, or Measure” and using “only Arguments of Sense,”²⁰⁴ Petty claimed that “the Power and Wealth of England hath increased this last forty years,” citing the acquisition of new territories and dominions, a greater volume of shipping trade, falling interest rates (which proved the “increase of money”) and extensive agricultural and infrastructural improvements.²⁰⁵ Petty’s *Political Arithmetick* would “shew the uses of knowing the true State of the People, Land, Stock, Trade...that the King subjects are not in, so bad a condition, as discontented Men would make them.”²⁰⁶

Although the facts gathered and analyzed by Petty were useful for persuading cynics that the progress of the English Nation was real, they also signalled the scope and direction of intended changes. That is to say, Political Arithmetic did not merely diagnose the body of the nation: its ultimate goal was to effect a cure or an improvement of its condition. And just as Ireland had been the test case for the first comprehensive surveys and maps in Britain in the late sixteenth century,

²⁰³ Ted McCormick notes that, although the body had long been a popular metaphor for the commonwealth and its parts, Petty’s ideas were shaped by the new science of physiology, with its emphasis on circulation. Furthermore, the body now represented the state rather than the commonwealth. The purpose of *Political Arithmetick* was to “anatomize society’s parts and functions.” See Ted McCormick, “The Advancement of Policy: Art and Nature in William Petty’s Political Arithmetic,” *Paper Delivered at the Annual Meeting of the History of Science Society in Washington, DC*, vol. 3. 2007; 2; and “Political Arithmetic and Sacred History: Population Thought in the English Enlightenment, 1660-1750”, *Journal of British Studies* 52:4 (2013): 829.

²⁰⁴ William Petty, *Political Arithmetick* (London: Robert Clavel, 1691), Preface. (marxist.org).

²⁰⁵ Ibid. Such agricultural improvements included: “Dreyning of Fens, watering of dry Grounds, improving of Forrests, and Commons, making of Heathy and Barren Grounds, to bear Saint-foyne, and Clover grass; meliorating, and multiplying several sorts of Fruits, and Garden-Stuffe, making some Rivers Navigable, &c. I say it is manifest, that the Land in its present Condition, is able to bear more Provision, and Commodities, than it was forty years ago.”

²⁰⁶ Ibid

it was also the site where Petty first practiced his Arithmetic upon the body politic.²⁰⁷ After Cromwell's invasion of Ireland in 1654, Petty was assigned to survey the territory with the aim of creating "a quantifiable measure of the island's potential value."²⁰⁸ Once the scientific survey of some 8.4 million acres of Irish land was completed, Petty compiled and published the data in the 1656 Down's Survey. The survey was invaluable in determining the fertility and market value of lands to be parcelled out as a repayment to those who had contributed to Cromwell's campaign.²⁰⁹ As McCormick notes, Political Arithmetic "centered initially on the stabilization of English colonial power in Ireland." It is important to keep in mind that it was more than "an embryonic political economy informed by a scientific outlook. It was a Baconian science of colonial improvement and social engineering."²¹⁰

By the end of the seventeenth century, Petty's use of quantitative analysis as evidence of improvement and as a means to social engineering had become a new standard in political and economic argument. A host of published works presented the progress of England's condition in exhaustive detail. Some of these works, such as Robert Morden's *New Description of England*,

²⁰⁷ Adam Fox, "Sir William Petty, Ireland, and the Making of a Political Economist, 1653–87 1," *The Economic History Review* 62, no. 2 (2009): 389; and Jesse Goldstein, "Terra Economica: Waste and the Production of Enclosed Nature," *Antipode* 45, no.2 (2013): 367. doi: 10.1111/j.1467-8330.2012.01003.x. Goldstein explains that Petty did not refer to data on historic yields to measure the fertility or market value of the land because he assumed that, being cultivated by Irish peasantry, improved husbandry methods had not been used. Instead he "deployed scientific measures such as the number of seeds yielded by a single stalk of grain, or the weight of hay produced per unit of land, in an effort to create a quantifiable measure of the island's potential value," 367.

²⁰⁸ McNally quoted in Goldstein, *Terra Economica*, 376.

²⁰⁹ Fox, "Sir William Petty," 2; Goldstein, *Terra Economica*, 376.

²¹⁰ McCormick, "The Advancement of Policy," 1.

gathered “precise knowledge of the area of every county,” including “up to date maps, soil, natural history, products, size of counties in acres, contribution of land tax...and estimates of population.” Such information was an invaluable tool for more strategic and systematic governing of the kingdom. By the 1690s there was a new generation of “political arithmeticians” carrying on Petty’s work. In fact, Slack notes that there was a “growing influence in government and parliament of ‘men of numbers’... members of the educated elite intrigued by measurements, calculations of proportions, and speculations about trends in population and the national wealth.”²¹¹ Increasingly, fears of finitude or regression were not so much allayed as quashed by a new and sturdy confidence in numbers and quantitative data.

Here, we see the formation of a pattern we can recognize in our own modern cultures: the response to expressions of profound uncertainty about the meaning, nature and direction of human movement through history is to bury them under an avalanche of metrics, units of knowledge infused with authority by their very abstraction. Thus, in seeking to persuade the doubters, advocates of improvement gathered and presented quantitative evidence of progress, solidifying the epistemological foundations of the discourse in the process. But what most embedded improvement in the culture of modern England was a parallel discourse which presented the *absence* of improvement as an intolerable and dangerous state in urgent need of reform.

Improvement’s Other: Waste as a Potential Desert

Improvement, as expounded by advocates like Walter Blith, was both an assemblage of practical husbandry methods and techniques for enhancing the productivity of all sorts of land, and a solemn

²¹¹ Slack, *The Invention of Improvement*, 161-3.

duty to God and the commonwealth to commit to increasing the land's fertility. Writing in the mid-seventeenth century, Blith disdained the current agricultural practice in much the same way that Bacon had disdained the meandering and static state of knowledge at the turn of the century. His discourse was aimed at those content with "only receiving and living upon the present profits of their Lands" and "not minding their Lands advance."²¹² But the edification of his target audience consisted as much in describing the many causes of the land's barrenness and the wickedness of waste land as it did in informing them of the many ways that land could be advanced to greater productivity.

If the potential for abundance and the duty to advance beckoned improvers to cultivate and accumulate, it seems that a fear of oblivion impelled them to do so. Indeed, the idea of improvement may not have embedded itself so deeply into English culture had it not been defined so emphatically in relation to its opposite: waste. While wastelands were not new in themselves, as a category juxtaposed against improvement, waste was a mid-seventeenth century invention. The venom and the horror with which improvement advocates wrote about waste reveals to us their worst fears about the prospects of the nation, and of humanity as a whole. The fears of stagnation and degeneration that were articulated in debates about the condition of England were consistently projected onto the landscape wherever improvement was absent. Unimproved land was either waste- empty, undefined and desolate- or a chaotic and dangerous wilderness. In either case, if left unreformed, these sorts of land represented a threat, as did the sort of people attached to them: commoners, Irish Catholics, or Native Americans.

²¹² Walter Blith, *England's Improvement Improved, or the Survey of Husbandry Surveyed* (London: John Wright, 1652) 59. Google books.

When applied to land, ‘waste’ generally signifies an uncultivated state, and this meaning did not change from the medieval period to the modern period. What did change in the seventeenth century was the characterization of wastelands as being unused. And yet, this characterization depended on a practice of selective blindness, for commoners had regularly found a variety of ingenious uses for the Wastes. As Neeson explains, “sauntering after a grazing cow, snaring rabbits and birds, fishing, looking for wood, watercress, nuts or spring flowers, gathering teasles, rushes, mushrooms or berries, and cutting peat and turves were all part of a commoning economy and a commoning way of life invisible to outsiders.”²¹³ Along with their numerous uses, there were also a great many names for waste lands. According to Everitt, in Kent alone they were called: “chart, minis, warren, hoath, leacon, lees, tye, scrubs, bushe, roughs, roughetts, frith, shaw, weald, hurst moor, plain, wold.”²¹⁴

If wastes were so varied in name, in kind and in the resources they offered, how could improvement’s advocates claim, as they regularly did, that they were “barren”, “deserts”, desolate tracts of sterility? How could they be called unused? The answer is that they had learned not to see the fecundity of unenclosed land and the value of common use rights.²¹⁵ Only plant and animal life that flourished under human management counted as fertility and the only use that had value was productive value- the increase in profits from changes made to the land.²¹⁶ From this perspective, waste was any land which had the *potential* to be improved in this way, but was not.

²¹³ Neeson, *Commoners*, 40.

²¹⁴ Everitt, quoted in Goldstein, *Terra Economica*, 365.

²¹⁵ *Ibid*, 368.

²¹⁶ Neeson, *Commoners*, 15-17.

As a strict division developed between improved and unimproved land, all the variations of the latter were erased, so that common lands, open fields and wastes were “collapsed into a general category of unused or inefficiently used lands, interchangeably called waste, or commons.”²¹⁷

Thus, the barrenness so often complained of in the improvement literature rarely referred to land that was truly infertile. Rather, it was a statement on the different social groups who obstructed the economic growth of the nation’s agriculture as a whole. Take for instance Walter Blith’s second chapter in *English Improvement Improved*, on “the causes of Barrenesse upon all Lands”. He argues that the first general source of barrenness lies “in man naturally,... in him as I conceive the Cause of Causes, which is Ignorance, occasioning the prejudice men bar against Improvement,... as all men naturally hate the true light of God because it discovers their darkness”²¹⁸ In this way, Blith manages to impugn the morality of all who expressed doubts about improvement! For example, the cause of barrenness “in respect of the owner, or occupier thereof, is Idleness, Improvidence, and a slavish Custome of some old form, or way of Husbandry.” Another “particular cause in man of the Earths unfruitfulness,” writes Blith, is the shortage of laws encouraging work and improvement, punishing idleness and the “Rogues and Vagrants that wander the Country.” Only after enumerating all such man-made causes -including a half a page on drunkenness alone-does Blith turn to the second general cause of barrenness, in “the earth itself.” This includes overgrazing and overtilling, and “obscure causes” such as “Coldness, wet, stoniness and mountainousness”²¹⁹ Here the language of improvement infertility and waste

²¹⁷ Goldstein, 366

²¹⁸ Blith, *The English Improver Improved*, 59.

²¹⁹ *Ibid*, 59.

stemmed less from the conditions of the soil than from the economically unproductive segments of society.

The Threat of Waste: the Horror of a Void

Waste lands, according to a recent edition of the Oxford English Dictionary, are “uninhabited, or sparsely inhabited and uncultivated country, a wild and desolate region, a desert, a wilderness.”²²⁰

This definition makes clear the impact, even today, of improvement and enclosure on how we see land undefined by private property. We are so accustomed now to the official assignment of land to categories of property that, as Goldstein puts it, “it is difficult to imagine alternative conceptions that have not already been flattened into an abandoned, empty, or socially vacuous space of one form or another.”²²¹ The eighteenth century juxtaposition of waste with improvement led to the erasure of waste’s former meanings. Ironically, this flattened, emptied meaning of the word captures something of its roots. Waste shares its origin in the Latin word “vastus” with the English words “vast” and “void.”²²² While the lands that improvers labelled Waste were often neither vast nor void, these are the very images and the feelings evoked when improvers describe them. Why should this be so?

One answer may be that the practice of map making and map reading - that view of the scene from above - had begun to colonize improvers’ perceptions of land: the abstract, geometrical and linear reference points began to appear more real than the life on the ground not captured on the map. Similarly, the adoption of a Newtonian perception of space as empty encouraged

²²⁰ Goldstein, *Terra Economica*, 365.

²²¹ *Ibid*, 364-5.

²²² *A Concise Etymological Dictionary of the English Language*, ed. Walter W. Skeat, # (London, UK: Forgotten Books, 2013), s.v “waste.”

improvement advocates to view unnamed land as a vacancy to be filled. What could or should be in that space had begun to matter more than was already there. The problem with the trick of not seeing what was there was that nothing remained that could register as a reference, no landmarks were left to offer direction. Commons and wastes were full of references to guide behavior-traditional, customary, moral and practical references, but, as things of the past, these were not valued by improvers, focused as they were on the future. The improvement discourse had so thoroughly delegitimized the existing references that it was only as dangerous obstacles that they were seen at all.

The perception and description of unimproved land as vast and void was no doubt a convenient way to invalidate forms of land use that conflicted with improvers' plans. But beneath the rhetoric – or in its very excess -we can hear real murmurs of unease, the unmeant emission of a sense of dread. Encountering lands in the form of commons and wastes, the improving advocate was confronted with a space without meaning: his own belief in the ideology of improvement had divested that land of the meaning given it by the old order, while the new meaning had not yet been implanted. At this in-between moment the land therefore lay before him bare and unhusbanded. This glimpse of land unmediated by any regime of human interpretation, in turn, exposed the shallow roots of the improvement project itself. The customary use of the land was no less a regime of human interpretation- but the centuries had lent it authority, and allowed the roots to anchor. The order imposed on the land by Improvement was, by comparison, a new, alien and therefore precarious enterprise. No wonder they were so impatient to implant it.

The dread occasioned by that in-between moment, that glimpse of land unadorned by human design, is an archetypally modern fear. As Bauman tells us, the ordering impulse within modernity, by creating ever more boundaries of containment, simultaneously produces more

ambivalence:

Ostensibly, the naming/classifying function of language has the prevention of ambivalence as its purpose. Performance is measured by the neatness of the divisions between classes, the precision of their definitional boundaries, and the unambiguity with which objects may be allocated to classes. And yet the application of such criteria, and the very activity whose progress they are to monitor, are the ultimate sources of ambivalence and the reasons why ambivalence is unlikely ever to become truly extinct, whatever the amount and the ardour of the structuring/ordering effort.”²²³

If so-called “waste” lands evoked feelings of deep unease and an anxiety to “convert the sterile soil” through improvement, this was especially so in improvers’ encounters with wilderness or unknown land. That this became the characteristic reflex of not only the improvement discourse but also of Britain’s imperial encounters is illustrated in Marzec’s discussion of the Crusoe Syndrome. Daniel Defoe, who was himself a keen proponent of agricultural improvement, wrote the tale of Robinson Crusoe’s adventures in 1719. The character, Crusoe, narrates a series of adventures which ultimately lead to his now famous shipwreck and decades-long captivity on a deserted island. Though he is the only survivor, he finds himself as terrified of the land as he was of the sea and so his first impulse is to climb a tree. He spent his first night sheltered there, from all the unknowns in the space below:

"Fearful of unknown space, he spends his first night inhabiting the land not on its own terms but metaphysically above it in a tree. Uncontrollably thrown into the space of uncultivated land, he is unable to immediately establish a frame of reference, which triggers a response of dread: The land appears as an example of the Lacanian Real, a nonsymbolizable, meaningless presence that bewilders Crusoe’s sensibility, and by extension the sociosymbolic order of the British Empire that he carries on his back." ²²⁴

Crusoe’s early days on the island are spent in a state of paranoia. Upon waking that first

²²³ Bauman, *Modernity and Ambivalence*, 2.

²²⁴ Robert P. Marzec, “Enclosures, Colonization and the *Robinson Crusoe* Syndrome: A Genealogy of Land in a Global Context,” *Boundary 2* 29, no. 2 (2002): 130. <https://doi.org/10.1215/01903659-29-2-129>.

morning he descends the tree and sets himself the task of building a “wall” up against a cave. It is to protect against all the unknown threats of this strange space, including predators, human and animal. In time, he would build ever more walls and fences for his own habitation, and in order to enclose the livestock he breeds and the crops he raises. In this way he becomes a confident and comfortable husbandman, who has tamed the land and rearranged it on his own terms. It is only years later, when he spots the human footprint, that his dread returns. But when he sees the footprint it “throws into high relief the ontological dread concealed behind these acts of enclosure and their essential relation to identity formation”²²⁵

In a sense, there is nothing very peculiar about Crusoe’s first two acts on the island: his impulses to survey and to enclose are both reasonable self-protective strategies in a survival situation. But his “ontological dread” of the unknown space is symptomatic of a modern syndrome: unable to tolerate the ambivalence of undefined land, he must transcend it, divide it into parts and assign each part its function. Rather than *inhabiting* the land (which means “standing upon” and “being supported by” the land) he imposes the relation of enclosure upon it.²²⁶ Just as the extension of the horizon in modernity triggers the division of order and chaos into opposing forces, enclosure, “overcodes the land, placing on the land a gridwork of oppositions,” notably, nomad versus settler, indigenous inhabitant versus imperial improver. Enclosure then, is “the socio-symbolic order of the British empire.” It is Crusoe’s frame of reference, his constructed horizon in a space without

²²⁵ Marzec, “Enclosures,” 145-6.

²²⁶ Marzec, explains that “Within the logic of enclosure, instead of the human subject being “set up” by the land, the human subject sets up the land, territorializes it with its positive presence, places an individual name upon the land. Land is deprived of its foundational offering, and that foundation subsequently is placed within the self.” In Marzec, “Enclosures,” 142.

meaning.²²⁷ Moreover, as Marzec argues, this grid,

[s]tands as a formal diagram for future colonial developments: Before England began to colonize open, wild, and uncultivated land and subjects abroad, it created an apparatus for colonizing its open land and subjects at home—an apparatus that could readily be transplanted to distant territories. Enabling the British subject to establish a sovereign sense of identity, enclosures precipitate and prepare the way for England's relocation in the expanding circle of the colonial world map. It was in the enclosure act that the ideology of imperialism became a material reality.²²⁸

As an isolated individual stranded on a desolate island, Crusoe's dread, his sense of exposure to unknown dangers, is understandable. What is more difficult to understand is how the powerful class of men who wrote improvement tracts could consistently signal their own dread, their sense that some amorphous menace emanated from the commons and wastes of their own nation. How could these M.Ps, political philosophers, scientists and members of the landed gentry persuade themselves that they were endangered by the very commons their own enclosures were erasing?

The most obvious reason for the portrayal of the commons and wastes as wild and dangerous was also the most practical. Improvers hoped to convince other members of the elite (who were their target audience) to come over to their own way of thinking. With enough repetition and vehemence, their fearful rhetoric might persuade fellow elites who continued to oppose enclosure that in defending the commons they were defending the morally indefensible.²²⁹ This

²²⁷ Ibid, 142.

²²⁸ Ibid, 131. For a detailed discussion of the enclosure of commons in Colonial North America, see Allan Greer, "Commons and Enclosure in the Colonization of North America," *The American Historical Review* 117, no. 2 (2012): 365.

²²⁹ Among the many elite opponents of enclosure were dissenting clergymen, such as Stephen Addington, and Reverend David Davies, pastoral poets and artists, such as Oliver

anti-commons propaganda aimed to eliminate the most immediate threats to the improvement movement: economic obstacles and social resistance to enclosures.

Every commons that was allowed to remain “threatened the entire landscape of value production, by enabling peasants to continue self-provisioning and therefore to avoid wage dependence.”²³⁰ But this was not the language used to turn opinion against the commons. Instead of portraying the commons as an obstacle to a novel economic practice, authors such as Walter Blith portrayed them as a disorder which could only be eradicated through the intervention of enclosures and improvement. Indeed, he compared this intervention to God’s own intervention at Creation: “So God was the Original, and first Husbandman, the pattern of all Husbandry, and the first projector of that great design, to bring that old Masse and Chaos of confusion unto so vast an Improvement, as all the world admires and subsists from.”²³¹

Blith argued that the commons simply did not provide enough for the poor to live on, that confusion reigned because the land was not divided into parts for each user, and that this encouraged “Oppressors” to overuse the land to the detriment of others. While it was by no means accurate, the image of the commons he impresses on his readers is one of “chaos and confusion.” To add to the malevolence of this image, he closes his section on the commons with a lengthy reproduction of a “verse” by Thomas Tusser comparing enclosures with the “champion” system

Goldsmith, Thomas Gainsborough and Thomas Bewick, and radical pamphleteers, such as John Wilkes, and William Cobbett. The moral philosopher and mathematician Richard Price was also a vocal opponent of enclosures (I will mention Price again in the third chapter, for his demographic work would serve as a basis for actuarial calculations into the nineteenth century) See Neeson, *Commoners*, 20; and Jeanette Neeson, “The Opponents of Enclosure in Eighteenth-Century Northamptonshire.” *Past & Present* 105 (1984): 114.

²³⁰ Perelman, 2000, quoted in Goldstein, *Terra Economica*, 371.

²³¹ Blith, *The English Improver Improved*, 4.

of land use:²³²

The Champain robbeth at night
 And prowleth and filcheth by day
 Himself and his Beasts out of sight
 Both spoyleth and maketh away
 Not only thy Gras but thy Corn
 Both after and ye'er it be shorn
 His household to feed and his Hog
 Now stealeth he, now will he crave
 And now will he cozen and cog
 In Bridewell a number be stript
 Less worthy than Thief to be whipt
 For "Commons" these Commoners cry
 Inclosing they may not abide;
 Yet Some be not able to buy
 A Cow with a Calf by her side
 Nor lay not to live by their work
 But Theevishly loyter and lurk
 Where Champains ruleth the rost
 There daily disorder is most"²³³

Too histrionic to count as rational argument, such depictions of commoners as devious, thieving and lurking might, however, have had enough emotive power to persuade some elites against protecting the commons. Was it really worth defending the commons if they were full of bullies and thieves, if the commons were, in Joseph Lee's words 'the seed-plot of contention, the nursery of beggary.'²³⁴ Such language achieved two ends at once: it cast doubt on the legitimacy

²³² Tusser, in Blith, *The English Improver Improved*, 90-91. Thomas Tusser was a popular promoter of surveying and enclosure in the late sixteenth century. The fact that Tusser's verse repeatedly charges "the Champion" (commoner) with thievery and begging reveals the constancy of such motifs in the anti-commons propaganda and their association with the earliest efforts to promote enclosures.

²³³ *Ibid*, 90-91.

²³⁴ Quoted in Neeson, *Commoners*, 43.

of common rights, and it raised the specter of treachery among the common people. For what lay at the root of such rhetoric was the same fear that always haunts the powerful: the fear that a newly obtained power will be taken away from them, that those whose rights were trampled in the attainment of that power would exact revenge through uprising.

While it is true that by the end of the seventeenth century the moral consensus among elites had turned in favour of improvement, this was still a period of transition between two forms of socio-economic organization. Advocates and practitioners of improvement could hardly deny that their regime was being resisted both on the ground and in the tracts of elite critics. The precariousness of the new order may have magnified their sense that commoners were dangerous. Moreover, the distanced relation to the land encouraged by the practice and discourse of improvement may have given improvers a greater level of control but it also alienated them from the land and its inhabitants. Being “metaphysically above” them but no longer in relation to them, improvers could more easily reimagine the commons as the malignant lair of foreign enemies.

Contempt for Wastes and Commons

In the improvement literature from the eighteenth century, one detects changes in the tone and pattern of the anti-commons rhetoric. The fearful tone doesn't so much disappear as it becomes steeped in layers of contempt. Now, everything that evades the grid of English improvement becomes the source –and target– of contempt. This includes anything reminiscent of the earlier stages of human history or of customary social and agricultural practices, or of Nature untamed, and *anyone* whose character is incongruous with the emerging English national identity. As the improvement discourse intersected with the entrenchment and expansion of English colonial power, all of these Others of modern civilization– the past, custom, Nature, nomadism and foreign

peoples- were fused together into the category of enemy, and the terms of abuse levelled at them were used interchangeably: wild, barren, idle, corrupt, barbaric, primitive.²³⁵

As was illuminated so powerfully in Edward Said's *Orientalism* and *Culture and Imperialism*, for centuries, in cultural expressions like the novel, Europeans have constituted the non-European Other as the reverse image of their own cultural preoccupations. The English, for example, for whom industry, foresight, and rationality were moral and social imperatives, represented the Other as "indolent," "improvident," and "irrational." English national identity, and European identity as a whole, were thus actively shaped in relation to this projected representation of the Other and this identity was largely affirmed as superior and civilized. Applying the concepts of discourse and hegemony as explicated by Foucault and Gramsci, Said argued that these European cultural discourses were not simply works of description, but actually prepared the way ideologically for, legitimated and perpetuated the colonial exploitation and subjection of non-Europeans.²³⁶ Thus, the contemptuous discourse on "wastes" not only prepared the way for enclosures but was also part of a much wider European discourse. Enclosure and

²³⁵ As Marzec notes, for example, "From the seventeenth to the nineteenth century, parallels were drawn between an "immoral" British underclass, Irish peasants, and "primitive" Africans." See Marzec, "Enclosures," 139; On this parallel discourse also see Ann Laura Stoler, *Race and the Education of Desire: Foucault's "History of Sexuality" and the Colonial Order of Things* (Durham, N.C.: Duke University Press, 1995), 125 and Hayden White, *Tropics of Discourse: Essays in Cultural Criticism* (Baltimore, Md.: Johns Hopkins University Press, 1978), 193.

²³⁶ Edward Said, *Orientalism* (London: Penguin, 1978); and *Culture and Imperialism* (New York: Vintage, 1993). Of course, England had internal "Others" as well: the same language used to describe colonial Others -childish, improvident, emotional, unruly- were often use against women, the Irish, and the poor. See Mark Netzloff, *England's Internal Colonies: Class, Capital, and the Literature of Early Modern English Colonialism* (London; Macmillan, 2003) and David Harding, "Objects of English Colonial Discourse: the Irish and Native Americans," *Nordic Irish Studies* 4 (2005): 37.

improvement were part of global colonial project of land-grabbing and “primitive accumulation” achieved through the assertion and imposition of private property.

In the eighteenth and nineteenth centuries, Marzek explains, the characterization of the land as an enemy “come[s] to rule imperial consciousness and novelistic re-representation in the modern era: the imperial encounter with land emerges as a syndrome and land comes to be represented in the sociosymbolic order of empire as a hostile being needing to be enclosed, “cured” and cultivated”²³⁷ According to Goldstein, by the late eighteenth century “commoners at home and colonial others abroad” who resisted improvement were perceived as “economic and political foes” whose recalcitrance was “an affront to ascendant understandings of capitalist value production.” In 1793, partly to combat these foes, “parliament created a Board of Agriculture to serve as the unified mouthpiece for land reform domestically and abroad.” In 1803 the Board’s first director, John Sinclair, wrote:

We have begun another campaign against the foreign enemies of the country ... Why should we not attempt a campaign also against our great domestic foe, I mean the hitherto unconquered sterility of so large a proportion of the surface of the kingdom? ... let us not be satisfied with the liberation of Egypt, or the subjugation of Malta, but let us subdue Finchley Common; let us conquer Hounslow Heath; let us compel Epping Forest to submit to the yoke of improvement.²³⁸

Included among the propaganda in the war against unimproved land was a way of writing about commons, wastes and forests as though they were possessed of personalities and wills intent on corrupting those who lived upon them. According to Goldstein, “it was held that the land itself

²³⁷ Marzek, “Enclosures,” 137. Marzek identifies a number of novels from this period which portray the commons and wilderness as forces of chaos and disease. Many novels also foreground a struggle between nomadic impulses and settled agriculturalism as a recurring narrative trope wherein the protagonist forms his/her identity and matures, 132-135.

²³⁸ Goldstein, *Terra Economica*, 363.

was responsible for breeding laziness and inefficiency.”²³⁹ Meanwhile, unmanaged forests were thought to nurture lawlessness, acting as a “nest and conservatory of sloth, idleness, and misery.”²⁴⁰ Some thought the fenland produced the worst commoners, who “lurk like spiders, and, when they see a chance, sally out, and drive or drown or steal just as suits them.”²⁴¹ That the land “bred” or served as a “nest” for intolerable characters who “lurk[ed] like spiders” only further emphasized the otherness, the repulsive animal nature of those *inhabiting* rather than supervising the natural world.

The Eighteenth Century: Entrenching Private Property and Landscaping Nature

Legal and Historical Justifications of Private Property

This inappropriately embedded relation to nature seemed to prevail not only among commoners but also among the indigenous peoples that the English encountered abroad. Both groups were thought to persist in behaviors that properly belonged to the past. This was not merely the view of advocates of agricultural improvement. By the eighteenth century the idea that historical change was linear and progressive had been given new momentum by the historians of the “Scottish school.”²⁴² Particularly popular was the idea that history progressed through stages, from hunting to shepherding to agriculture and finally, to commerce.²⁴³ This “conjectural” theory of human

²³⁹ Ibid, 368.

²⁴⁰ Stephen Daniels, "The Political Iconography of Woodland," *The Iconography of Landscape*, ed. Denis Cosgrove and Stephen Daniels, (Cambridge: Cambridge University Press, 1988), 44. These were “the words of a reporter on the New Forest to the Board of Agriculture.”

²⁴¹ Neeson, *Commoners*, 33.

²⁴² Slack, *The Invention of Improvement*, 216.

social progress had its origin in seventeenth century French and English historical thought, but it was the Scottish philosophers Ferguson, Milar, and Adam Smith, who first articulated this specific “stadial” version of the theory. Since hunting was identified as the most primitive stage in human development this seemed to justify the view that the indigenous of North America – for whom hunting was a dominant subsistence activity- were themselves “primitive” humans.²⁴⁴ As Fabian noted in *Time and the Other*, after the western conception of time was secularized in early modernity, there emerged a tendency for European thinkers to project onto other societies their ideas about their own historical origins, so that a pattern of “progress” was traced onto the contemporary map of humanity. The conflation of non-Western peoples with past stages in human development transformed the “Other” into an object of science, along with history and nature.²⁴⁵

Because the commoners of England also hunted and gathered in the open land, they were often compared with the indigenous of other lands. As Neeson explains, improving advocates such as Pennington thought that “Next to notions of modern agriculture the idea of sharing land in common was barbaric.” Because the common-right economy was considered primitive, “it made as much sense to preserve it as it did to leave North America to the Indians.” In Pennington’s thinking, they might as well “let the poor native Indians (though something more savage than many in the fens) enjoy all their ancient privileges, and cultivate their own country their own way.”²⁴⁶

²⁴³ Nathaniel Wolloch, *History and Nature in the Enlightenment: Praise of the Mastery of Nature in Eighteenth Century Historical Literature* (London: Ashgate, 2011), 92-3.

²⁴⁴ Wolloch, *History and Nature in the Enlightenment*, 93.

²⁴⁵ Johannes Fabian, *Time and The Other: How Anthropology Makes its Object*. (New York: Columbia University Press, 1983).

²⁴⁶ Neeson, *Commoners*, 30.

Neeson notes that the “critics of commons loathed commoners with a xenophobic intensity. They were a 'sordid race', as foreign and uncultivated as the land that fed them. Like commons they were wild and unproductive.”²⁴⁷ It would not be long before the commoners themselves were considered ideal objects of improvement. For improvers were trying to facilitate the transition from the penultimate stage of human development –agriculturalism- to the final stage of commercial society. And standing in their way, at home and abroad, were people content to remain at the first stage.

In time, such obstacles to progress were removed, both by the force of law and by force itself. But persuasion was also a vital tool in reinforcing what was viewed as the bridge between agriculturalism and commercialism: the enclosure of land into units of private property. According to property theorist Carol Rose, theories of property are, above all, forms of persuasion or self-persuasion.²⁴⁸ And it is easy to see with the passing of centuries that the first theories of private property relied heavily on self-persuasion and story-telling to justify the extinguishment of pre-existing systems of property. In his *Second Treatise on Government* (1689), John Locke articulated his labour theory of property, arguing that individuals could claim exclusive ownership of any resource into which they had intermixed their own labour.²⁴⁹ Locke made it clear that the nature

²⁴⁷ Ibid, 32.

²⁴⁸ Carol M. Rose, *Property and Persuasion: Essays on the History, Theory, and Rhetoric of Ownership* (Boulder, Colorado: Westview Press, 1994), 6.

²⁴⁹ John Locke, (1689) *Second Treatise of Government: An Essay Concerning the True Original, Extent and End of Civil Government*, intro. by Jonathan Bennett (Hoboken, NJ: John Wiley & Sons, 2014), 13. Accessed July 2016 at <https://www.earlymoderntexts.com/assets/pdfs/locke1689a.pdf>. Locke’s theory of property, its meaning and implications continue to foster varying interpretations and debates. For a comprehensive review of these interpretations please see Karl

of this labour should be productive. That is, with respect to land, anyone who 'tills, plants, improves, cultivates' is the original appropriator. Because he considered the peoples of North America to be living in a state of nature or at the earliest stage of civil society (where all land was owned in common by mankind) any claim they might make to ownership on the basis of original appropriation was invalid.²⁵⁰ Just as so many improvers had learned not to see the fecundity and usefulness of commons and wastes, "European ideas of settling vast 'empty' and 'wasted' continents was based on a failure to see, or a dismissal of, the land uses of indigenous peoples."²⁵¹ Locke did not acknowledge the settlement and cultivation already present in North America. Instead he "seemed to think that most of America was vacant. Native Americans wandered wherever they wanted in a vast, empty continent; Locke seemed quite concerned that they might get lost (II, 36)."²⁵²

Common law theorists also seemed intent on persuading themselves and others of the validity of private property by justifications based on "first possession." This was Blackstone's theory, expounded in the second volume of the *Commentaries*, "The Rights of Things" in 1769.

Widerquist, "Lockean Theories of Property: Justifications for Unilateral Appropriation" in *Public Reason* 2, no. 1 (2010): 3.

²⁵⁰ Locke, Second Treatise, 13-17. Some have argued that Locke had vested interests in North America. See James Tully, "Rediscovering America: The Two Treatises and Aboriginal Rights," in *Locke's Philosophy: Content and Context*, ed. G.A.J. Rogers (Oxford: Clarendon Press, 1994); and Barbara Arneil, "Trade, Plantations, and Property: John Locke and the Economic Defense of Colonialism," *John Locke and America: The Defence of English*, ed. Barbara Arneil (Oxford: Clarendon Press, 1996).

²⁵¹ John Douglas Bishop, "Locke's Theory of Original Appropriation and the Right of Settlement in Iroquois Territory." *Canadian Journal of Philosophy* 27, no. 3 (Sept. 1997): 336.

²⁵² Bishop, "Locke's Theory of Original Appropriation," 317.

By this time the discourse of “improvement” had developed into a mantra for the progress of the English nation. Outlining the history of property conventions in his introductory chapter, Blackstone portrays private property as the turning point in a providential march towards the convention of improvement. In the earliest stage, because the inhabitants of the earth were few, its resources were enjoyed communally. One’s possession of a property was only acknowledged for as long as he was actively occupying or using it. Eventually, with increased population and the relative scarcity of resources, nomadic ways were displaced by settlement and the art of agriculture. With the need for a regular and constant means of subsistence, “it became necessary to entertain conceptions of more permanent dominion. And to appropriate to individuals not the immediate use only but also the very substance of the thing to be used.” Without this change, Blackstone suggests, humans would remain within the disordered realm of nature.²⁵³

The proper, productive, use of land (improvement) was not possible without the convention of individuals unambiguously claiming their intentions for and ownership of property. Thus, as Purdy notes, Blackstone founds his justification of private property ownership upon both the “information rationale” and “first occupancy”, this latter not applying to those whose use of land was insufficiently permanent or improving.²⁵⁴ Now that this convention of the individual’s “sole and despotic dominion” over property has been established, Blackstone says, “so graciously has providence interwoven our duty and our happiness, the result of this very necessity has been the ennobling of the human species by giving it opportunities of improving its *rational* faculties as

²⁵³ William Blackstone (1766), *The Oxford Edition of Blackstone’s Commentaries on the Laws of England: Book II: of the Rights of Things*, ed. Simon Stern (Oxford: Oxford University Press, 2016), 2.

²⁵⁴ Jedediah Purdy, *The Meaning of Property: Freedom, Community, and the Legal Imagination* (New Haven: Yale University Press, 2010) 1.

well as exerting its *natural*". To insure this property, a host of modern institutions arise: laws, states, governments and civil society.²⁵⁵

The Law Steps in: the Parliamentary Enclosure Movement

In Britain the creation of a legal infrastructure supporting private property in land was a complicated affair. While it is true that by the eighteenth century land was increasingly being thought about and treated as a commodity rather than a habitation, the ease with which it could be alienated or transferred was severely restricted by common law and chancery courts. In fact, property in land would not become fully disembedded from its feudal structure until well into the twentieth century, largely because of the political influence of aristocratic families who wished to ensure their dynastic stability. The general muddiness of English land law makes all the more extraordinary the intervention of Parliament into the struggle between common rights and enclosures in the eighteenth century,²⁵⁶

Whereas the Tudor government had often legislated against enclosures, the Hanoverian

²⁵⁵ Blackstone, *The Oxford Edition of Blackstone's Commentaries*, 5. Yet, when compared against the practice of English common law, Blackstone's view of exclusive and private ownership as the historical arrival at the perfect conception of property appears to have been wishful thinking. In many ways the common law system is still formally shaped by the feudal social organization. There was, in Blackstone's time (and strictly speaking, even today) no concept of "absolute" ownership in England. Rather, the land is "held" or used for the owner. The only absolute owner, traced back through vertical feudal relations, is the Crown. By the seventeenth century claims to property in English law were divided between equitable and real interests- the former subject to the law of equity and the Chancery court and the latter to common law courts. English property law has for centuries been a convolution of overlapping interests in land. Rose describes it as "a saga of frustrated efforts to make clear who has what in land transfers." See Carol M. Rose, "Crystals and Mud in Property Law," *Stanford Law Review*, 40 (1988): 586.

²⁵⁶ Joshua Getzler, "Theories of Property and Economic Development," *Journal of Interdisciplinary History* 26, no. 4 (1996): 643-645.

government of the eighteenth century supported enclosures by passing private acts in Parliament. Historians estimate that in the period of Parliamentary Enclosure -from the 1750s to the passing of the General Enclosure Acts of 1836- 5,265 of these private acts were passed, allowing the enclosure of roughly seven million acres, or between a fifth and a quarter of England's land area.²⁵⁷ In the earlier half of that period the majority of the land enclosed was open arable land upon which many common rights had been enjoyed. Later the majority of the focus was on waste lands.

In genera, obtaining parliamentary authorization for enclosure was a long and costly affair, which began with a petition, and followed with the presentation of the bill to Parliament, two readings in the commons, and committee reports. The reports alone involved the hiring of experts from numerous fields to investigate land claims, acreage, tax assessment, land values and other details.²⁵⁸ On average the process took about three years. Even though the cost and duration of the private Act of Parliament were prohibitive, it nevertheless became “the predominant technique for enclosure” by the late eighteenth century.²⁵⁹

Before this time, the enclosure of areas affecting the interests and rights of others involved, as Cornish and Clark put it, “much commandeering on the part of the powerful- rough injustice and gross pressuring that could provoke violent reaction. Later, the process began to acquire a more seemly aspect of negotiation; influence was more subtlety applied and the resulting

²⁵⁷ Gordan Mingay, *Parliamentary Enclosure in England: An Introduction to its Causes, Incidence and Impact 1750-1850*. (London: Longman, 1997) 14, 15. The first figure Mingay takes from Michael Turner's 1980 study. The second figure – the acres enclosed during this period- he arrives at as a compromise between Turner's estimates and Chapman's.

²⁵⁸ W. R. Cornish and G de N. Clark, *Law and Society in England 1750-1950* (London: Sweet & Maxwell, 1989), 177.

²⁵⁹ Cornish and Clark, *Law and Society*, 177.

agreement might well be enshrined in a decree entered upon the record of the court of Chancery.”²⁶⁰ Before the eighteenth century such agreements meant that there no need to seek “legislative fiat” in order to enclose one's land.²⁶¹

Why then, was “enclosure by agreement” overtaken by Parliamentary Enclosure in the eighteenth century? Mingay suggests three reasons for this. First, Parliamentary Acts were a way of reaching greater legal certainty because “once the work of the Commissioners was completed and their Award sealed and delivered” the reorganization of property was “highly unlikely to be challenged.” Secondly, once they embarked on a private Act of Parliament, landowners could also get approval for other desirable changes, “particularly commutation of the tithes and improvement of roads.” Finally, Mingay suggests that the most common reason landowners used Private acts of Parliament to enclose was in order to side-step opposition to the enclosure.²⁶²

Indeed, as E.P. Thompson noted, “the great age of parliamentary enclosure , between 1760 and 1820 is testimony not only to the rage for improvement but also to the tenacity with which “humoursome” or “spiteful” fellows blocked the way to enclosure by agreement, holding out to the last for the old customary economy.”²⁶³ Popular resistance did not disappear with the advent of Parliamentary Enclosures. Rather, many commoners, whose interests in the lands to be enclosed

²⁶⁰ Ibid, 176

²⁶¹ S.J. Thompson, “Parliamentary Enclosure, Property, Population, and the Decline of Classical Republicanism in Eighteenth-Century Britain,” *The Historical Journal* 51, no. 3 (2008): 623.

²⁶² Mingay, *Parliamentary Enclosure*, 21-2.

²⁶³ E. P. Thompson, *Customs in Common*, 110.

were largely discounted at parliament, continued to resist enclosure in a variety of ways. Their determination to resist enclosure suggests that, while the law did not recognize their common rights as it once had, they continued to believe in the legitimacy of those rights. As Neeson says: “They contested enclosure Bills with petitions, threats, foot-dragging, the theft of new landmarks, surveys and field books; with riotous assemblies to destroy gates, posts and rails; and with more covert threats and arson.”²⁶⁴ Cornish and Clark explain that, in light of the ongoing resistance to enclosure, “Parliament’s most delicate role was to judge whether opposition could safely be ignored. This it was mostly prepared to do if the objectors amounted to no more than a fifth or a quarter of the landowners by value (not number). Significantly no precise proportion was ever laid down, nor how the valuation was to be arrived at.”²⁶⁵

By no means was opposition to enclosures exclusive to those who actually depended on the commoning economy. In the 1730s, elite advocates of the commons, such as John Cowper and Thomas Andrews, argued that enclosure would lead to depopulation and bring an end to the independence of small farmers and other commoners.²⁶⁶ According to Neeson, these and other commentators framed their defense of the commons in terms of what was good for the nation as a whole. The loss of the commons, they argued, would negatively impact the health of England’s manufactures, food and labour supplies, and military. Even Timothy Nourse, who was unsparing in his contempt for the denizens of the commons, thought that common field agriculture could sustain a greater number of people than enclosed lands and that when they were no longer available

²⁶⁴ Neeson, *Commoners*, 321.

²⁶⁵ Cornish and Clark, *Law and Society*, 177.

²⁶⁶ *Ibid*, 21.

as a standing reserve of labour, or soldiers and sailors, the nation would suffer.²⁶⁷

In the latter half of the eighteenth century the national interest remained at the centre of arguments both for and against enclosures.²⁶⁸ According to S.J. Thompson, many of the elites who opposed enclosure did so on the basis of classical republican ideas.²⁶⁹ Among the most prominent exponents of these ideas were the dissenting Protestant ministers Richard Price and Stephen Addington, who argued that the modern policy of enclosures would lead to greater inequality, moral decay and military weakness. By contrast, they argued, the Roman agrarian laws and Tudor tillage Acts were wiser and more just, for they safeguarded the independence of the yeomanry and did not allow the liberty of the many to be sacrificed for the riches of the few.²⁷⁰

Advocates of enclosure countered that these historical examples were irrelevant, for eighteenth century England was “a society based on the interdependence of agriculture, manufactures, and commerce.”²⁷¹ Moreover, their idea of liberty was different: what mattered most was that people be allowed to improve, innovate, and pursue economic profit without the interference of policy makers. They did not seem to see the irony of insisting on non-interference even as they defended the intervention of Parliament in authorizing enclosures.²⁷² As Cornish and Clark put it: “To no other purpose did the aristocracy and gentry use their legislature more regularly

²⁶⁷ *Ibid*, 21-25.

²⁶⁸ *Ibid*, 24.

²⁶⁹ S.J. Thompson, “Parliamentary Enclosure,” 621-2.

²⁷⁰ *Ibid*, 622, 625-28.

²⁷¹ *Ibid*, 625.

²⁷² *Ibid*, 641.

than for the adjustment of private rights. By the mid-eighteenth century it had become the predominant technique for enclosure.”²⁷³

Nature Estranged and Imitated: Display/Erasure in English Landscape Gardens

By the eighteenth century, enclosures had already been altering the complexion of English land for centuries. But the arrangement of “natural” spaces was drawing a new and acute kind of attention just as enclosures were being granted legitimacy through Acts of Parliament, theories of private property and the wider discourse of improvement. This attention often took the form of aesthetic representations of ‘natural’ scenery, in poetry, novels, and paintings and in the design of gardens and landscapes. As with all aesthetic expression, these representations of nature reveal the particular cultural and political preoccupations of their time. The eighteenth century is widely considered the moment in European thought of a new sense of rupture between culture and nature, a moment when ‘Nature’ seemed separate and external to the human world.²⁷⁴

²⁷³ Cornish and Clark, *Law and Society*, 177.

²⁷⁴ Of course, this objectification of the natural world was not wholly new to the eighteenth century. Certainly humans have been trying to control natural resources at least as far back as their earliest efforts in agricultural and pastoralism. And as I have demonstrated in the second chapter, with the rise of secular thought in medieval, renaissance and early modern periods the earthly – as opposed to divine - realm came to be viewed as the site of human action, an object of reform. Nevertheless, the separation between humanity and nature was much starker in this period, and not only because of industrialization and urbanization. And as Raymond Williams argued, “it is at just this time, and first of all in the philosophy of the improvers, that nature is decisively seen as separate from men. Earlier ideas of nature had included, in an integral way, ideas of human nature. But now nature, increasingly, was 'out there', and it was natural to reshape it to a dominant need, without having to consider very deeply what this reshaping might do to men.” See Raymond Williams, “Ideas of Nature,” in *Problems in Materialism and Culture: Selected Essays* (London: New. Left Books, 1980), 79-80.

Much of the eighteenth century attitude to nature is continuous with the attitudes of previous centuries. For example, in many previous centuries there appears to have been some version of the idea that, beneath its varied and capricious surface, nature was shaped by a fixed and divine order. Meanwhile, the natural sciences of the eighteenth century, which were becoming increasingly specialized, were largely an extension of the Baconian impulse to order human understanding of the natural world. The peculiarities of the eighteenth century attitude to nature and its hidden order appear more clearly in aesthetic expressions of the period, particularly in the landscaped gardens of the largest estates. Indeed, this was the century during which the English countryside was first shaped into what continues to be admired as a quintessentially English scene.

If enclosure was the legal and material assertion of one's exclusive ownership of a territory, the landscaping of that property was a display of one's status and power. To some extent the surveyor's map had fulfilled the same function. As Bendall notes, "Maps can be seen as part of a continuum of which views, prospects and landscape paintings form a part."²⁷⁵ In each of these media, power and status are displayed and consumed aesthetically. In the case of maps, for instance, Gregory says that, "it was in cartographic form that the pleasing regularity of ... enclosures- in stark contrast with the expanses of heath and common- could best be appreciated." The open spaces on the map indicating common lands were a source of embarrassment to estate owners. If instead they enclosed "large tracts of land...in a compact unit" they could display through the map their family's power to "reshape the landscape"²⁷⁶ The estate map also allowed

²⁷⁵ Bendall, *Maps, Land and Society*, 5-6. Bendall notes that maps and landscape representations "both stem from fifteenth century discoveries which enabled the expression of an awareness of space, of mapping in terms of coordinates and of perspective painting: artists and cartographers were aware of each other's' techniques and could practice each other's art."

²⁷⁶ Jon Gregory, "Mapping Improvement: Reshaping Rural Landscapes in the Eighteenth Century" in *Landscapes* 6, no.1 (2005): 66-70.

the landowner to survey all the land he owned in one glance. This, the ‘pleasing prospect’, the distanced, all-encompassing view, was precisely the effect that many eighteenth century estate owners hired their landscape architects to produce.

A century earlier, the view of an endless prospect from a seat of power belonged exclusively to the absolute monarch. The landscape gardens of the Stuarts were influenced by the theatrical scenes designed by architect and surveyor Inigo Jones, which placed the king at a central and elevated point in order that he could survey all before him.²⁷⁷ As in other early modern European states, the royal gardens and court were characterized by symmetrical, symbolic and geometrically precise arrangements of space. Such arrangements represented the body politic as the mirror image of the natural order itself. However, according to Olwig, this courtly view of the natural and political order did not extend to the country, where the rival powers of the non-noble gentry, freemen and ‘the people’ tended to conceive of nature in more organic terms. In his preface to Olwig’s *Landscape, Nature and the Body Politic*, Tuan describes the dichotomous worldviews of court and country:

...to one side were the absolutist, purist, and universalist aspirations of court and monarch, to the other side the customs and traditions, the rights and obligations of the people ; to the one side, high art and artifice, to the other side, closeness to earth and organic wholesomeness. Even the senses were differently engaged. The court privileged sight: think again of the spectacles of the court theatre and beyond it the splendidly landscaped gardens that stretched into the distant horizon. The country by contrast was multisensorial - more egalitarian and communal in political terms."²⁷⁸

²⁷⁷ Yi-Fu Tuan, “Foreword,” in *Landscape, Nature and the Body Politic: from Britain's Renaissance to America's New World*, ed. Kenneth Olwig (Madison, WI; University of Wisconsin Press, 2002), xv.

²⁷⁸ Tuan, “Foreword,” xvi.

By the eighteenth century, however, the opposition between these two models of political and natural order was no longer meaningful. It is not that a balance was found between them, but that power had shifted from the court to the country, bringing with it the spatial expression of the court. Olwig demonstrates this shift of power and its manifestation in the eighteenth century country estate by tracing the evolution of the word landscape itself. Landscape derived from the Germanic word *landschaft*, a term used in Northern Europe to mean not merely a territory, but also a legal and political domain and the community it represented.²⁷⁹ While the word was adopted into English at the end of the sixteenth century as ‘landscape’, that word came to be more strongly associated with a view or portrayal of a natural scene. Much more comparable to *landschaft* was the already existing term “country.” More than physical territory, ‘country’ also signified the interests of the people within that territory as determined through customary law. The Whigs who fought for the rights of Parliament, and who sought to wrest power from the court, saw themselves as champions of this ancient customary law, and of the people of the country.

But in the eighteenth century, when that power had been achieved and the Whigs constituted an oligarchy, it was with the aesthetics of the court that they wished to design their country seats. This was much more than an aesthetic preference.²⁸⁰ As Olwig notes, “the power to define the meaning of country gave the power to define the social and political legitimacy of political and economic power.’ The ‘party of the country’ may have been the victor in the glorious revolution but, in fact, “the court came to dominate- that is, its attitude of mind that favors centralized planning and rational processes, that is intolerant of messy, multiple viewpoints.” As

²⁷⁹ Kenneth Olwig, “Recovering the Substantive Nature of Landscape,” *Annals of the Association of American Geographers* 86, no.4. (Dec., 1996): 632.

²⁸⁰ Olwig, “Recovering”, 639.

with the surveyors map, the landscaped gardens of English estates redefined the meaning of what it represented. Landscape as community and local, customary laws was now supplanted by landscape as “the top-down power of the lord.”²⁸¹

One of the most popular styles with which the gentry expressed this new power of the country seat was neo-Palladianism. In the late sixteenth century the Venetian architect Palladio had used the geometrical techniques of renaissance artists, particularly single-point perspective, in order to recreate the spatial rationality of classical Rome in the estates and landscapes of the *terrafirma* and nobility.²⁸² Inigo Jones had been deeply influenced by Palladio’s approach, and used similar techniques to create the illusion of three dimensions in his theatrical scenes at the Stuart court. Olwig notes that in the masques designed by Jones, the scenery in the foreground was arranged in such a way that it blended seamlessly with landscape in the background. Using “the science of perspective” had the effect of blurring “the distinction between the world out there and the world of the theatre” so that the landscape was “perceived as a ‘natural’ sign that transcended the ‘conventions’ of human communication.”²⁸³ With the resurgence of interest in Jones’s designs in the eighteenth century, the Palladian and Jonesian techniques of geometrical rationality and the blending of artificial and natural scenery were adapted to the English landscaped garden.

²⁸¹ Kenneth Olwig, *Landscape, Nature and the Body Politic: from Britain's Renaissance to America's New World*, (Madison, WI; University of Wisconsin Press, 2002), 26.

²⁸² Olwig, “Recovering,” 638-9.

²⁸³ Olwig, *Landscape, Nature and the Body Politic*, 21.

As has been discussed in chapter two, the role of geometry in modern European representations of space can be traced back to the influence of Ptolmey and the innovative techniques renaissance artists. It was also central to the development of cartography, surveying and estate mapping in early modern England. Nor was the application of geometric rationality to garden design a novelty of the eighteenth century, for the seventeenth century gardens both in England and on the continent explicitly expressed the courtly view of nature as rational order itself. The eighteenth century English garden was likewise shaped by geometry, Reason's "most transparent emblem and effective instrument." As Tuan notes, reason was not at odds with nature but rather it was "nature at its most lucid and intelligible."²⁸⁴

Nevertheless, the English gardens of the eighteenth century appeared less formal or geometrically precise than those of the seventeenth century, or of their counterparts on the continent. Anne- Louise Sommer illustrates this change in the case of Viscount Cobham's garden park at Stowe in Buckinghamshire:

With a formal garden of a rather modest size as its starting point from the late 17th century, Stowe changed radically and expanded through the first half of the 18th century. In the 1730s and -40s gardener and landscape architect William Kent contributed substantially to the renewal with a masterly choreography of series of picturesque landscapes and a unique staging of the dialogue between framed landscapes of the 'nature' outside the garden, and the cleverly arranged and varied micro landscape scenes of the garden.²⁸⁵

Thus, the true innovation of the early eighteenth century English landscaped garden was this apparent blending of the artificial design of the garden with the natural scenery beyond it. In the 1730s and 40s William Kent and Royal gardener Charles Bridgeman drew on the techniques

²⁸⁴ Tuan, "Foreword," xviii.

²⁸⁵ Anne-Louise Sommer, "Nature Choreographed: The eighteenth Century Garden as a Knowledge-generating Feature," *Erfurt Electronic Studies in English* 4 (2007). http://webdoc.sub.gwdg.de/edoc/ia/eese/artic27/sommer/4_2007.html.

of Palladian design and Jonesian scenery to create the effect of a more expansive prospect, one that stretched into the natural realm itself.

The gardens of the seventeenth century had been obvious artificial environments, formal and symbolic representations of nature which were limited in scope and separate from the world around them. Now, just as the natural world was being objectified more than ever before, dissected and rearranged in scientific study, refined, standardized and commodified as industrial inputs, the landed gentry wished to replicate its dynamism and complexity, to take as their aesthetic model, what they had instrumentalized. Most of all they want to blur the boundary between man-made and natural, between their property and the distant hills at the horizon, between first and second nature. William Kent achieved this effect with the ‘ha-ha,’ a sunken fence or ditch which, when viewed from the house by the landowner, hid the perimeters of his property and ensured the prospect of a sweeping uninterrupted view.²⁸⁶

In the second half of the eighteenth century new approaches were used to shape landscape gardens on the model of nature. Lancelot “Capability” Brown designed the lands of hundreds of properties in such a way that the natural forms of the landscape itself were laid bare; he emphasized “the lines and shapes and contours of its ground, waters, and trees. He neglected statues, mottoes and inscriptions and to some extent buildings; he swept the lawn straight up to the walls of the house, eliminating all terraces and other remains of the ‘specific garden.’”²⁸⁷ The “studied elimination of designed elements” in Brown’s “landscape parks” struck some observers as far too

²⁸⁶ Roy Porter, *English Society in the Eighteenth Century* (London: Penguin, 1982) 264.

²⁸⁷ John Dixon-Hunt and Peter Willis, eds., *The Genius of the Place: the English Landscape Garden, 1620-1820* (London: MIT Press, 1988), 31.

radical an attempt to mirror nature. As Joshua Reynolds protested, “if the true taste consists, as many hold, in banishing every appearance of Art, or any traces of the footsteps of man, it would then no longer be a Garden.”²⁸⁸ Partly in response to Brown’s more austere representation of nature, and partly inspired by the seventeenth century paintings of Claude Lorrain and Nicola Poussin, the rustic details of Dutch painting and the graceful spontaneity of Chinese gardens, the picturesque movement dominated the landscape designs of the late eighteenth century. The picturesque landscape idealized nature in a different way than Brown’s had, shaping the landscape to appear as a painting, using the shading of trees shrubs and other features to give a dramatic effect, and dividing the scene into foreground, middle ground and background. Humphrey Repton’s later designs followed the picturesque, but by showcasing formal and classical elements of design in the foreground, the bare contours of the Brownian landscape park in the middle ground, and wilder vistas in the background, he managed to incorporate the three dominant styles of the eighteenth century into his landscapes.

Common to each of these conventions- the staging effects of Palladio and Jones, the landscape park, and the picturesque – is, as Raymond Williams says, “an apparent standard for ‘natural’ fidelity” which is also “an invitation to arrange and rearrange nature according to a point of view.”²⁸⁹ Specifically, they are intended to appeal to a proprietorial gaze. As Daniels notes of the clumps of planted trees and shrubs in Capability Brown’s parks, “the site, size and tonality ... enhanced the size of a park and the pleasure of running one’s eyes possessively over its contours.” Repton himself wrote that improving the design of estates was about “appropriation...that charm

²⁸⁸ Dixon-Hunt and Willis, *The Genius of the Place*, 32.

²⁸⁹ Raymond Williams, *The Country and the City* (Oxford: Oxford University Press, 1975), 123.

which only belongs to ownership, the exclusive right of enjoyment, with the power of refusing that others should share our pleasure." ²⁹⁰

Moreover, with their conscious emulation of natural elements and artful attempts to disguise human intervention, these landscapes betray an increasing sense of alienation from nature. The impulse to “naturalize” nature could only come from the sense of its separation. It was a way of borrowing the authority of nature to legitimize an extra-natural order. And one doesn’t borrow an authority to which one still feels subject. ²⁹¹ As Raymond Williams notes, the legitimization of the improved estate through the naturalization of its landscape occurred at the same moment that theorists were legitimizing- by framing as natural- the convention of private property and the “new natural economic laws and the natural liberty of the entrepreneur.”²⁹²

As both Williams and Mitchell argue, what was being hidden in these landscapes was not merely the work of the architect, but also the labour from which the landlord’s wealth and property derived, the wage labour into which commoners were now pressed by enclosures. Just as the surveyor’s maps excluded any markings of the customary relations of the commoners who inhabited the land, the landscape garden was, in Williams words;

a rural landscape emptied of rural labour and of labourers; a sylvan and watery prospect , with a hundred analogies in neo-pastoral painting and poetry, from which the facts of production had been banished: the roads and approaches artfully concealed by trees, so that the very fact of communication could be visually suppressed: inconvenient barns and mills cleared away out of sight ...avenues opening to the distant hills, where no details disturbed the general view’ and this landscape seen from above...is a commanding

²⁹⁰ Daniels, "The Political Iconography of Woodland," 45.

²⁹¹ Williams, “Ideas of Nature,” 79.

²⁹² Williams, “Ideas of Nature,” 79.

prospect that is at the same time a triumph of ‘unspoiled’ nature: this is the achievement, an effective and still imposing mystification.²⁹³

The English landscape garden concealed the conditions that created it and presented itself as already always there.²⁹⁴ In fact, this idyllic rural scene became -and remains- a central image of English national identity.²⁹⁵ Moreover, the commanding view of this scene and the erasure of labour and of the local markers and meanings of “the country” were replicated wherever the British Empire staked its claim. British Plantations and estates in Ireland, India, North America and beyond were designed according to the conventions of the English landscape garden. Often these were “the overseas extensions of the large-scale operations of absentee owners” whose estates in the English countryside were therefore not merely the seat of power nationally, but “the seat of a world empire constituting a global commonwealth of British power.”²⁹⁶ For, as Mitchell has suggested, “the representation of landscape is not only a matter of internal politics and national or class ideology but also an international, global phenomenon, intimately bound of with the discourses of imperialism.”²⁹⁷

Indeed, with its commanding view of a scene that stretches out toward the horizon, the English landscape garden visually expressed the reaching impulse of both imperialism and improvement. It represented the aspiration to push beyond territorial and natural limitations. Meanwhile, the act of gardening itself exhibits a logic of enclosure and has served as a potent

²⁹³ Williams, *The Country and the City*, 125

²⁹⁴ Williams, *The Ideas of Nature*, 79-80.

²⁹⁵ W. J.T. Mitchell, *Landscape and Power* (University of Chicago Press, 2002), 17.

²⁹⁶ Olwig, *Landscape, Nature and the Body Politic*, 104.

²⁹⁷ Mitchell, *Landscape and Power*, 9.

metaphor for modernity. While Bauman primarily uses the metaphor to illustrate the classificatory work of modern states, it is also applicable to the ordering imperative within modernity. According to Cosgrove, as early as the Renaissance, the garden was a central “trope for European’s imaginative domestication of a new, global spatiality ... characterized above all by the disruption of previously established spatial, ethnographic and conceptual boundaries. And we know that fixing a boundary between the wild and the cultivated is the primary act of gardening.”²⁹⁸ But while the formal gardens of the renaissance and early modern period were symbolic expressions of an ideal political and natural order, their eighteenth century counterparts made that order a material reality, which expanded across the English countryside and the world beyond it, transforming the visual and social reality.

Enclosing and Accumulating Nature’s Objects: Linnaean Classification

The transformation of the English countryside was not the only manifestation of the modern impulse to order Nature in the eighteenth century. Increasingly, the natural historians of that century imposed a logic of enclosure upon objects of the natural world by attempting to assign to each a place within their systems of classification. I do not intend here to imply any causal relation between the enclosures of land into property, and the enclosures of natural objects of knowledge within categories. Instead, I wish to stress that they are kin, born of the same episteme, as Foucault puts it. Proof of that kinship can be found in a number of common markers: both kinds of enclosure are abstractions, which attempt to contain objects of the natural world by separating them from the variation and complexity of their context; for both, each act of containment is also an act of division

²⁹⁸ Denis Cosgrove and Stephen Daniels, ed. *The Iconography of Landscape* (Cambridge: Cambridge UP, 1988), 53.

between inside and outside; and finally, the repetition of these twin acts of containment and division lead to both fragmentation of all into discrete enclosures/categories and to the accumulation of these enclosures/categories.²⁹⁹ This last feature leads me to a characteristic of enclosures that I have not yet addressed in this chapter: in terms of both property and knowledge, enclosure is deployed as a means of grasping control and enforcing stability in an uncertain and unstable world. And yet, as a process which unfolds over time, enclosure ultimately slips the reins and becomes uncontrollable. The accumulation of enclosed objects is simultaneously the fragmentation of the larger terrain -the framework- into ever smaller units. Ultimately the weight of this accumulation collapses onto itself and the fragmentation disintegrates the very ordering system framing modern experience.

We are not wrong to picture enclosure as a circle- or as any shape *closed off* from a surrounding space. Yet, when we consider the application of the logic of enclosure over time we see a pattern in which this closure is continually evaded: first, the object of enclosure is contained; then the contained objects accumulate until they overburden any means of containment; and finally, to solve this crisis, ever more precise means of containment are deployed, and the cycle begins again. We can get a clearer understanding of how the logic of enclosure plays out over time if we reflect on the novel means by which eighteenth century natural historians attempted to know and represent the objects of the natural world. The classification system created by Swedish botanist Linnaeus is particularly illustrative not only of what Foucault calls the “grid of knowledge constituted by natural history” but also of the relationship between order and ambivalence that Bauman identifies as central to modernity.³⁰⁰

²⁹⁹ Bauman, *Modernity and Ambivalence*, 4.

With his *Systema Naturae*, published in 1735, Carolus Linnaeus set out to bring all knowledge of natural objects into one efficient system, a sort of grid which allowed one to identify and assign a place to any specimen from nature's variety. While the *Systema Naturae* also included the animal and mineral kingdoms, it was through Linnaeus's botanical taxonomy that Europeans came to know his name, and to know the names of plants. In fact, "binomial nomenclature," which introduced the standard of giving one generic and one specific name for each living being (ie. *Homo-sapiens*), remains one of Linnaeus's lasting contributions to the biological sciences. The benefit of binomial nomenclature, and of Linnaeus' classification system as a whole, was that it simplified and standardized the process of identifying species and their relation to one another.³⁰¹

For Linnaeus, "the foundation of botany consist(ed) in the division of plants and systematic name-giving." Plants were divided from each other according to the differences of their organs of reproduction, and these differences were determined by four variables only. Every note made about a plant's organs (such as petals, stamens, apexes, pistils, and fruits) "should be a product of number, of form, of proportion, of situation."³⁰²

Linnaeus's "descriptive order" for natural history, which focused on just a few visual and countable elements, Foucault saw as typical of the epistemology of the "classical" age of the

³⁰⁰ Foucault, *The Order of Things*, 127-8.

³⁰¹ M.S. J. Engel-Ledeboer and R. Engel, "Introduction," in *Carolus Linnaeus's Systema Naturae* (Nieuwkoop: B. De Graaf, 1965), 11; Paul A. Elliot, *Enlightenment, Modernity and Science: Geographies of Scientific Culture and Improvement in Georgian England*, (London; I.B. Tauris, 2010) 65.

³⁰² Carolus Linnaeus, *Carolus Linnaeus's Systema Naturae*, Intro. by M.S. J. Engel-Ledeboer and R. Engel, 22.

seventeenth and eighteenth centuries.³⁰³ This was a “period of purification” in which the thing observed and the signs that the culture had collected around it over time were separated. Now “it is the thing itself that appears, in its own characters, but within the reality that has been patterned from the very outset by the name.” To convey the novelty of this approach to history, Foucault describes the histories of natural objects before the mid seventeenth century, when,

History was the inextricable and completely unitary fabric of all that was visible of things and of the signs that had been discovered or lodged in them: to write the history of a plant or an animal was as much a matter of describing its elements or organs as of describing the resemblances that could be found in it, the virtues that it was thought to possess, the legends and stories with which it had been involved, its place in heraldry, the medicaments that were concocted from its substance, the foods it provided, what the ancients recorded of it, and what travellers might have said of it. The history of a living being was that being itself, within the whole semantic network that connected it to the world... signs were then part of things themselves, whereas in the seventeenth century they become modes of representation.”³⁰⁴

Like the *construzione legittima* - the window the renaissance artists looked through to represent reality “objectively”- and indeed, like enclosures superimposed onto complex networks of customary rights to the land, these “modes of representation” are abstractions made possible only by severing the object from its environment. Foucault explains that the locus of natural history is “ a non-temporal rectangle in which, stripped of all commentary...creatures present themselves one beside another, their surfaces visible, grouped according to their common features, and thus already virtually analysed, and bearers of nothing but their own individual names.”³⁰⁵

³⁰³ Foucault explains that according to Linnaeus’ order, “every chapter dealing with a given animal should follow the following plan: name, theory, kind, species, attributes, use, and to conclude, Litteraria. The litteraria, which is “all the language deposited upon things by time... is pushed back into the very last category.” Foucault, *The Order of Things*, 130.

³⁰⁴ Ibid, 129.

³⁰⁵ Ibid, 131-2.

The great advantage of severing and erasing the relations in which an object is embedded, is that it allows the object to be presented without ambiguity. Like the visual maps drawn up by surveyors, classificatory systems like Linnaeus' communicate immediately to any viewer the place of the object in the larger system, and the most important of its constituent parts. At a glance the viewer is assured of the orderly arrangement of the natural world, and of the firmness with which modern systems of knowledge can grasp that arrangement. According to Foucault, it was in pursuit of further certainty and order that natural history reduced the sensory apprehension of the natural object to the visual. From the seventeenth century on, the observations of natural historians excluded hearsay and also taste and smell "because their lack of certainty, and their variability render impossible any analysis into distinct elements that could be universally acceptable..." leaving "sight with an almost exclusive privilege, being the sense by which we perceive extent and establish proof and in consequence, the means to an analysis partes extra partes acceptable to everyone."³⁰⁶ Natural history's mode of representation had the effect of bringing "language as close as possible to the observing gaze, and the things observed as close as possible to words". Thus, he concludes that "natural history is nothing more than the nomination of the visible."³⁰⁷ That is, the apparent simplicity of taxonomic systems makes it appear as though the objects enclosed in their categories, and assigned names by Linnaeus and others, were always arranged thus, and always named that, as though they had merely waited to be observed and articulated before they could appear.

³⁰⁶ Ibid, 132-3.

³⁰⁷ Ibid, 132.

There is something in the apparent eternity of these categories and names that is reminiscent of the fetishism of the commodity form described by Marx. Indeed, like Marx's wooden table dancing on its head, the *Rosa Canina* (dog rose) placed next to the *Rosa Palustris* (swamp rose) are each presented without history. They share the burden or benefit of having been translated into a universal grammar- exchange value on the one hand, and taxonomic classification on the other. This arrangement of particularities into an easily understood order required only that they be measured against a universal standard. Linnaeus's categories- species, genus, class and order- and his variables -form, number, proportion and situation-, served as the universal standard by which any of nature's variety could be positioned. His system shared the ingenuity of his age, which was, Foucault says, "if not to see as little as possible, at least to restrict deliberately the area of its experience..., to be content with seeing... a few things systematically. With seeing what in the rather confused wealth of representation, can be analysed, recognized by all and thus given a name that everyone will be able to understand."³⁰⁸

Linnaeus was not the first to create a system of classification for plants, but his system improved upon others in its efficiency and ease of use. By reducing the great variety of natural specimens and their features to a few identifiable characteristics, he created a standard frame through which anyone could observe and know the object and its place within a larger order. According to Wellmon, the great popularity of Linnaean taxonomy was due both to its reproduction in widely circulated texts and to the simplicity of its methods, which made it like a "miniature grid that anyone could lay over nature."³⁰⁹ The portability of this "grid" made it an apt

³⁰⁸ Ibid, 134.

³⁰⁹ Chad Wellmon, "Goethe's Morphology of Knowledge, or the Overgrowth of Nomenclature," *Goethe Yearbook* 17, no. 1 (2010): 156

tool for those travelling throughout Europe and across the globe, so that by the middle of the eighteenth century Linnaean practices had become ubiquitous and even fashionable.³¹⁰

The efficiency of Linnaean categories and nomenclature was a welcome solution to what Charles Godfrey has called the “first bioinformatics crisis”.³¹¹ According to Wellmon, Linnaeus’s system “reduced the pressure of the increasing number of plants that had only become visible to the scientific eye with the emergence of botany as a science. It was designed to make the objective variability of nature- the variety of plants –navigable.” Yet, even as it offered a way to manage the overabundance of information, the dissemination of Linnaean taxonomy also perpetually recreated that overabundance. As professional and amateur botanists identified, collected and categorized ever more plant and animal species from across the globe, the initial categories proposed by Linnaeus lost their effectiveness as containers. Linnaeus’ successors were able to “stabilize and make the flow of information more efficient by delimiting categories,” continually dividing plants into ever more refined categories.³¹²

But the response of continually refining categories actually did nothing to stop the overwhelming accretion of new species. Wellmon notes that the first edition of Linnaeus’ *Systema Naturae* contained 549 species, “the tenth edition had 4387; the eleventh had 5897 and the final edition had over 7000. As new species were discovered, not only were new genera established but

³¹⁰ Wellmon, “Goethe’s Morphology of Knowledge,” 155.

³¹¹ H.C.J. Godfray, B.R.Clark et al, “The Web and the Structure of Taxonomy,” *Systematic Biology* 56, no. 6 (2007): 943.

³¹² Wellmon, , “Goethe’s Morphology of Knowledge,” 156

old genera were subdivided.” This over-accumulation of species put pressure on and “threatened the categorical stability of the genus.”³¹³

The result was not the collapse of Linnaean taxonomy. In fact, Linnaeus’ system is still with us today, in well-known divisions between kingdom, phylum, genus, etc. Only very recently has it been challenged by another system, “cladistics.”³¹⁴ Nevertheless, the ongoing restructuring of its categories in response to the overaccumulation of species tells us a few things about the ordering impulse in modern epistemology. First, it led to an awareness of the artificiality and the impermanence of the categories intended to enclose knowledge, and of the distance that it created between the observing subject and the object being observed. In the late eighteenth century one botany enthusiast recognized the shortcomings of the modern conception of order exemplified in Linnaean taxonomy, and offered an alternative approach to knowledge of the natural world.

This early critic of modern epistemology was Goethe, better known, of course, for his literary works. Wellmon compares the Linnaean taxonomic representation of living beings with Goethe’s own morphological approach. Goethe was an avid amateur botanist who had admired and practiced Linnaean methods for decades. Having first learned these practices and the Linnaean conception of order through his friendships with Linnaeus’ German acolytes, he found the system to be an effective aid to the memory and an invaluable reference when travelling. Like so many of his time he enjoyed the ease of the system. But later in his life, reflecting on his experiences with

³¹³ Ibid, 160.

³¹⁴ Cladistics, first proposed by Henning in 1966, is the idea that “classification should reflect phylogeny.” Henning found a way to systematize and formalize the inclusion of information on the evolutionary development of species within classification. Godfrey, and Clark, “The Web and the Structure of Taxonomy,” 945.

the science of botany in *The Metamorphosis of Plants* (1790), he described his growing awareness of a crisis within Linnaean classification. For Goethe, the crisis of overabundance of information was an opportunity to reflect on and to question some of the assumptions pervading modern epistemology.³¹⁵ Wellmon explains that,

for Goethe, the increasing specialization of knowledge was a distinctive feature of a modern age that had come to overestimate itself based on “der grossen Masse Stoffes, den sie umfasst” [“the great mass of material that it encompasses”]. By breaking knowledge down into discrete fields...the modern age was able to accumulate, process and manage more information. The modern age’s aggregative ethos of knowledge, then, was facilitated by the specialization of knowledge”, “what Thomas Pfau refers to as modernity’s “accumulative mode of inquiry.”³¹⁶

It was through his own attention to the life cycle of plants that Goethe first began to question the legitimacy of Linnaean taxonomy and of the “accumulative mode of inquiry” itself. While Linnaeus advised the student of plants to identify each species according to the number, form, proportion and situation of its reproductive organs, Goethe came to recognize that throughout a plant’s life each of these organs underwent numerous changes. Thus, while the taxonomic approach allowed observers to easily identify and place each species in relation to others, its observation of each plant was a mere glance. And basing the identity of the plant on what was seen in that glance was like freezing it in time and rendering static what was, to Goethe, so undeniably dynamic. This way of representing the natural object of knowledge - enclosing and isolating it from both its environment and its history - revealed to Goethe “the prior assumption of a static nature” within the modern epistemology. This, Wellmon tells us, “when combined with taxonomic instability had revealed a chasm between the human being and nature” and the

³¹⁵ Wellmon, “Goethe’s Morphology of Knowledge,” 156.

³¹⁶ *Ibid*, 154.

assumption that knowledge and order were dependent upon “a strict distinction between observer and observed.”³¹⁷ Rather than “simply tracing the edicts given by the divine lawgiver,” Goethe saw that the gaze of the human observer was as subject to change as the natural object being observed.³¹⁸ Devoid of any sense of the relationship between observer and observed, Linnaean taxonomy exemplified “a modern age that fragments, isolates and obfuscates the relationship of all knowledge.”³¹⁹ Goethe’s morphology proposed an alternative notion of order and knowledge, one which centered on relations and on the changes to both knowledge and living beings over time.

What we learn from the example of Linnaean taxonomy is how the modern ordering impulse itself unfolds through time. On the face of it, classification systems like Linnaeus,’ which have had to continually divide their categories to house new information, appear to be highly adaptable. However, the logic of enclosure never ends, and in fact it progressively creates conditions requiring its repetition. Enclosure, as a means of containing and controlling the unknown, becomes both compulsive and propulsive. In modernity, the more that enclosing logics are deployed to contain and name the wild and undefined realm just beyond the horizon, the further that horizon recedes, and the greater the impulse to vanquish ambivalence. Order and ambivalence are, according to Bauman, modernity’s original division. They are its twin creations, separated at birth. They relate to one another in a dynamic of co-dependence and mutual propulsion:

Ambivalence is a side-product of the labour of classification; and it calls for yet more classifying effort. Though born of the naming/classifying urge, ambivalence may be fought only with a naming that is yet more exact, and classes that are yet more precisely defined: that is, with such separations as will set still tougher (counterfactual) demands on the discreteness and transparency of the world and thus give yet more occasion for ambiguity.

³¹⁷ Ibid, 160-162.

³¹⁸ Ibid, 162.

³¹⁹ Ibid, 154.

The struggle against ambivalence is, therefore, both self-destructive and self-propelling. It goes on with unabating strength because it create its own problems in the course of resolving them.³²⁰

I should admit here that an analysis of Linnaean classification is an imperfect means of illustrating the inherent instability of the ordering imperative at work in the enclosure movement in eighteenth century England. Nevertheless, because it is imperfect as an analogy, a brief discussion of how it parallels and diverges from the logic of property enclosure may help to better illuminate a few key points. Foucault saw Linnaean classification as quintessentially of the classical episteme, in its imposition of order upon nature, its erecting of boundaries dividing inside from outside, its “nomination of the visible,” and its severing objects of nature from the complex and dynamic relations to which they belong. There are clearly parallels here with enclosure. Moreover, I think that, in their relationship to improvement and the system of private property, enclosures are, like Linnaeus’ classes, part of an “aggregative ethos” and “accumulative mode.”

But if Linnaean classification revealed, according to Goethe, “the prior assumption of static nature,” the same cannot really be said of the modern property regime, in which enclosures played a critical role. Private property was a means of establishing security and certainty, not with the purpose of fixing nature into an unchanging order, as in the *systema naturae*, but in order to guarantee individuals the exclusive freedom to use the land in whatever way they wished. At both the individual and systemic levels, then, private property facilitated a dynamic, flexible and transformational use of land. Not only did enclosure clear the ground for agricultural improvement and economic profit, but it also unmoored the fixed social arrangements of

³²⁰ Bauman, *Modernity and Ambivalence*, 3.

feudalism. Closing off an exclusive domain from a nexus of customary and feudal relations, and founding the value of property upon the common measure of exchange value, made property in land alienable, fungible, so that there was movement in the system. So there does seem to be a difference here, not only between Linnaeus' classification system and property enclosures, but also in the ordering imperative described by both Foucault and Bauman, and what I am trying to articulate about the relationship between certainty and uncertainty in modernity. As I have stressed in my account of both Baconian science and the improvement discourse, enclosure in modernity is not a straightforward matter of closure, but work rather as provisional foundations which are continually revised in order to balance security and the freedom attached to uncertainty. As I will demonstrate in the remaining chapters, the propulsive accumulation of such provisional foundations in modernity does produce greater instability and uncertainty.

Conclusion

I close this chapter not with an English example of either enclosure or improvement, but with the European crisis of overaccumulation of collected species and the instability of the categories intended to contain them. In doing so I wish to indicate not only that the logic of enclosure and the spirit of improvement extended beyond England, but also to stress the instability and uncertainty which feed and are fed by modern efforts to contain and to expand. The quality sought most, in Linnaeus' classification system, in Bacon's experiments, and in the enclosure of common lands and wastes, was some kind of certainty. To some extent this certainty was achieved. Linnaeus's system still stands, observation and experiment are still the cornerstone of modern science and the boundaries of private property remain fixed in law. And yet, sown in the soil of doubt, each of these certainties cultivates more doubt.

Enclosed and exclusive property, legal and natural facts, the constraints of experiments and

classification systems, all began as conscious and artificial constructions, boundaries within which a plan of reform, profit or knowledge might grow. Such boundaries are necessarily impermanent, and thus require constant repair and restoration. In the sciences, new separations must constantly be made to house the influx of ever more species and ever more disciplines of knowledge. And to protect the boundaries of private property, ever more legal rules and discourses of legitimization are deployed to buttress them. The enclosure movement creates massive instability wherever it goes. Dispossessed commoners, now wage-dependent, are driven to seek work in newly industrializing cities, the armies and navies, and the colonial territories, while those who remain in the country are erased from paintings and landscapes of the landlords' estate. In a sense, modern certainty is like the English landscaped garden- a polished facade behind which lies a ruptured or forgotten scene. But if we remember that the enclosure of property and the Baconian fact were viewed as tools for improvement, facilitators of endless growth, then a better analogy for modern certainty might be a series of stepping stones, allowing one to journey upon the unsound ground of an indeterminate world.

In any case, these boundaries do not vanquish ambivalence. As Bauman explains, modernity's ordering imperative responds with ever more precise classifications, fragmentations, and enclosures. As we will see in the following chapters, the English state responds to the disorders of unemployment and poverty by following Petty's lead- accumulating quantitative data on populations. Like the map or the survey in chapter two, this data prepares the way for reform, systematically classifying and targeting particular categories for improvement. Meanwhile the same aggregation of data is carried out by actuarial scientists working for insurance companies. They find that future uncertainties can be tamed through probability. Following the "law of large numbers", the various harms that might afflict the population can be foretold, and on this basis,

the risks of individuals can be contracted out to the insurance provider. In finance, property becomes more fungible and abstract. The risk associated with investment, and speculation can also be contracted out to insurers, a move that only encourages wilder and more abstract forms of investment. In the twentieth century, individuals become dependent upon large institutions such as the state, the banking system and insurance companies, for shelter from future uncertainty. But just as enclosures ultimately disrupt more than they protect, these modern forms of protection only generate instability and risks that are ever more difficult to contain.

Chapter Four

The Emergence of Risk and Insurance in Eighteenth Century England

Failing again and again to heed the signs of providence, Robinson Crusoe finds himself imprisoned on a deserted island and reflects on the choices that led him there:

my head began to be full of projects and undertakings beyond my reach...I was still to be the wilful agent of all my own miseries...all these miscarriages were procured by my apparent obstinate adhering to my foolish inclination of wandering abroad and pursuing that inclination, in contradiction to the clearest views of doing my self good in fair and plain pursuit of those prospects and those measures of life which nature and Providence concurred to present me with and to make my duty.only to pursue a rash and immoderate desire of rising faster than the nature of the thing admitted.¹

Among critics and advocates of classical political economy, Robinson Crusoe's adventures on the island have long been viewed as an allegory of capitalist enterprise. Relying only on his wit and resourcefulness to convert a hostile wilderness into a model English farm- by enclosing and improving the plants and animals he found and domesticated- Crusoe was favoured by classical political economists as the quintessential incarnation of "homo-economicus."²

But, as is evident in his reflections above, Defoe's character is filled with ambivalence about his own behavior. His story is much more than an early version of the self-made man. And it reflects something larger and more complex than the emergence of the self-interested individual in the formation of the capitalist society. Crusoe is not, in fact, alone on his adventure: his most constant companion is Divine Providence, and his relationship with Providence is a recurrent feature of the book. It is this relationship which gives tension to the story, drives the plot and

¹ Daniel Defoe (1719), *The Life and Strange Surprising Adventures of Robinson Crusoe*, (Oxford: Oxford University Press, 1998), 38.

² Karl Marx, *Capital: a Critique of Political Economy, Volume One* (London: Penguin Books, 1990), 169-170.

develops his character. Crusoe has been raised to consider it his duty to adhere to God's design. As a young man of the middling order, his duty is to settle and devote his energies to industrious husbandry. And yet, he cannot keep himself from overstepping the boundaries of that design.

Crusoe is a late seventeenth century English man torn between the two contradictory callings of his time and place: on the one hand, English society at this time denigrated ways of life not ruled by reason, moderation and the civilization. Settlement was esteemed as the mark of civilization and investment in agricultural production was among the most acceptable ventures.³ On the other hand, adventure and the possibility of riches beckoned from the world beyond, and the instinct to venture beyond the known borders of the nation was followed by ever more ships full of men hoping to find their fortunes.

Roots and Wings

The tension between the desires for freedom and risk on the one hand and the desires for security and certainty on the other, can be found in all human societies. As property theorist Margaret Radin puts it, in order to thrive humans do seem to need both roots and wings: both to be embedded in a context and to be able to transcend that context.⁴ But Robinson Crusoe's dilemma and that of the society to which he belongs, is particularly pertinent to the tensions which gave shape to modern European society.

At about the same time that Daniel Defoe was writing Robinson Crusoe, in the early

³ William Blackstone (1766), *Commentaries on the Laws of England: Book II: of the Rights of Things* (Oxford: Oxford University Press, 2016), 4-5.

⁴ Margaret J. Radin, *Reinterpreting Property* (Chicago and London: University of Chicago Press, 1993), 30-31.

eighteenth century, men were meeting in coffee-houses in London, engaging in exchanges that seemed to solve the dilemma of the contradictory needs for freedom and security. The owners of merchant ships about to set off on long journeys, the hazards of which were numerous but uncertain, would now stop first at coffee houses such as Lloyds to find a broker. The broker would take the ship-owner's risk in exchange for a premium. He would then shop this risk around so that those who wanted to make the gamble on the fortunes of the ship could do so. The owner of the ship now could take his adventure- with all of its potential riches- while protecting himself from the worst of its potential hazards. This was the beginning of insurance, a technique for managing risk that would put the previous risk management technique- Providence- out of business.

In this second half of the dissertation, I argue that, with the rise of insurance and the calculations of probabilities which made it possible, a new kind of shelter was found to protect people from modern exposure to the uncertainties of the future. The same mapping and enclosing logics which had been used in the apprehension and reorganization of property and knowledge were now being extended to the unknown realm of the future and to the improvement of society. In chapters five and six I will demonstrate how, just as math and geometry made space objective and easier to control from a distance, the collection of data on populations and the mathematical analysis of likely outcomes for those populations objectified risk and made it manageable. But the objectification and commodification of risk did not mean that a balance was found between the needs for "roots and wings." If anything, roots were now propelled forward by wings, to rest on ever more abstract foundations. That is, as risks were contracted out through investment and insurance, the management of risk depended ever more on relations between strangers, and was anchored only by trust in the expert knowledge through which future patterns could be predicted. In this chapter I discuss current scholarship on risk, its meaning and its crucial role in modernity.

While I recount a number of premodern and often ancient practices associated with risk, I argue that it is a modern phenomenon, largely shaped by probability theory and its application to the social realm in the eighteenth and nineteenth centuries. I then turn to the story of the rise of investment and insurance in the early eighteenth century London stock market, to show how, by objectifying and commodifying risk, uncertainty could be both contained and courted in profit-seeking ventures. Finally, I recount how, over the course of the eighteenth century, cultural discomfort with gambling's heretical embrace of chance and with the calculative assessment of lives in insurance, was gradually replaced by a grudging trust in the expert, actuarial knowledge and abstract systems of the first large scale insurance organizations.

What is Risk?

Risk Literature

Only a few decades ago academic research on risk was limited to the business, economics or scientific disciplines. But, ever since the publication of Ulrich Beck's landmark work *Risk Society* in 1982, risk has become an enduring topic across the social sciences. In *Risk Society*, Beck argued that late twentieth century societies were forced to confront the unforeseen outcomes of modernity, risks which were now beyond the reach of the calculations which had advanced modernity.⁵ Now risk has become an important area of research not only in legal and economic studies, but also in social sciences such as psychology, political science, international relations, social theory and sociology.⁶ While the topic of risk is now being explored in a variety of disciplines, the social

⁵ Ulrich Beck, *Risk Society: Towards a New Modernity*, (London: Sage, 1992).

⁶ Gerda Reith, "Uncertain Times: the Notion of 'Risk,' and the Development of Modernity," *Time & Society* 13, no. 2/3 (2004), 384.

theories of risk tend to fall into two major camps: the “risk society” approach and the Foucauldian inspired approach to risk as a form of governmentality.⁷ The former, drawing on the work of Beck and Giddens, tends to focus on contemporary, and often global and catastrophic risks that have emerged over the last few decades, such as global warming and AIDS.⁸ Those associated with the latter approach, such as Tom Baker, Robert Castel, Francois Ewald, and Pat O’Malley, tend to focus on discourses of risk as a means of social control.⁹ Following Aaron Doyle, as well as Richard Ericson and Kevin Haggerty, I see the risk society and risk and governmentality theories as essentially compatible, for both view risk as constituting a late modern society in which lives are heavily managed and yet deeply insecure.

This chapter draws on insights from both literatures. Like many of the governmentality

⁷ Aaron Doyle, “Trust, Citizenship and Exclusion in the Risk Society,” in *Risk and Trust: Including or Excluding Citizens?* ed. Law Commission of Canada (Blackpoint, Nova Scotia: Fernwood Publications, 2007), 7. Gerda Reith suggests that her cultural constructivist approach, shared by Deborah Lupton and Mary Douglas, may be seen as a separate approach to the topic. See Reith, “Uncertain Times,” 384; Mary Douglas and Aaron Wildavsky. *Risk and Culture: An Essay on the Selection of Technological and Environmental Dangers* Oakland, CA: University of California Press, 1983) and Deborah Lupton, Deborah, ed., *Risk and Sociocultural Theory: New Directions and Perspectives* (Cambridge: Cambridge University Press, 1999). Also see Jens Oliver Zinn, “The Sociology of Risk and Uncertainty: Current State and Perspectives,” in *Routledge Handbook of Risk Studies*, ed. Adam Burgess, Alberto Alemanno, and Jens Zinn, 1-14 (London: Routledge, 2016), 1-2.

⁸ Anthony Giddens, *The Consequences of Modernity* (Cambridge: Polity Press, 1990) and Ulrich Beck, *Risk Society: Towards a New Modernity*, (London: Sage, 1992).

⁹ Tom Baker and Jonathan Simon, 2002. *Embracing Risk: The Changing Culture of Insurance and Responsibility* (Chicago: University of Chicago Press, 2002); Pat O’Malley, *Risk and Uncertainty in Government* (London: Glasshouse, 2004) Also see David Garland, *The Culture of Control: Crime and Social Order in Contemporary Society* (Chicago: University of Chicago Press, 2001); and Richard Ericson, Aaron Doyle and Dean Barry, *Insurance as Governance* (Toronto: University of Toronto Press, 2003). For Foucault’s influential essay, “Governmentality,” as well as Robert Castel, “From Dangerousness to Risk,” and François Ewald, “Insurance and Risk,” see *The Foucault Effect: Studies in Governmentality*, ed. Graham Burchell, Colin Gordon and Peter Miller (Chicago: University of Chicago Press, 1991).

theorists, I also see discourses of risk and the institutions that manage risk as means by which modern states control and categorize large populations. Following Giddens, I draw attention to the relationship in modernity between risk and trust, particularly the trust that people place in abstract knowledge, systems and institutions. And I conclude, along with Beck and Giddens, that in response to attempts to control risks, they have only proliferated beyond our control. Yet my treatment of risk here differs from the above mentioned approaches in focusing on its role in the historical development of modernity. I do not argue that risk society is an exclusively late modern development, but rather that it is one of the originating drives constituting modernity. “Risk Society” emerged as an inherent part of modernity, for, as I will demonstrate in chapter five, the awareness of risk helped to create the very concept of “society,” a uniquely modern kind of human organization. Risking and risk management developed out of and alongside the drives to survey, map, enclose and improve, from the late seventeenth century on. While many of the developments in the story of risk occurred throughout Europe, and ultimately across the globe, I continue to focus largely on the British case, where the risk oriented activities of investing and insurance emerged in the context of a culture of improvement.

Defining Risk

As words go, risk is (relatively) new: some claim that the first use of the word can be traced to sixteenth century Italy, where “risicare” meant “to dare” or “to run into danger.”¹⁰ It is interesting

¹⁰ Peter Bernstein, *Against the Gods: The Remarkable Story of Risk* (New York: John Wiley and Sons, 1998), 8. There are, in fact, a number of different claims about the origin of the word risk. According to Catherine Althaus, some have argued that it comes from the ancient Greek word *rhiza*, meaning, “the hazards of sailing too near the cliffs,” while others locate its origin in the Latin word *risicum* “challenge posed by a barrier reef to a sailor” or to the Arabic word *risq* “anything that has been given to you (by God) and from which you draw profit.” See Catherine Althaus, *Calculating Political Risks* (Sidney: University of New South Wales Press, 2008), 20-21. Giddens, meanwhile, suggests that the word “seems to have found its way into English in the

to note, as Bernstein does, that in this definition risk is a choice “rather than a fate.”¹¹ A current definition of risk, from the Oxford dictionary, identifies it as “a chance or possibility of danger, loss, injury or other adverse consequences.”¹² Meanwhile, Webster’s defines the transitive verb ‘to risk’ as “exposure to hazard or danger.”¹³ But as a verb, risk can also mean something potentially positive- it is to dare to expose oneself to danger, in the hopeful expectation of a reward.

Risk is therefore inherently ambivalent: it is simultaneously about adventure and coverage, expansion and containment. As with the quest for improvement and the logic of enclosure, risk taking and risk management are examples of the modern dynamic between freedom and control. They act upon each other, propelling each other ever forward. The dynamism of risk is, according to Garland, conditional, reactive, relational, continual and interactive.¹⁴

Risk is such a rich, many-sided concept that, as Garland points out, were Raymond Williams alive today he would surely include it in his *Keywords* (1983). Garland explains that,

“Today’s accounts of risk are remarkable for their multiplicity and for the variety of senses they give to the term. Risk is a calculation. Risk is a commodity. Risk is capital. Risk is a technique of government. Risk is objective and scientifically knowable. Risk is subjective and socially constructed. Risk is a problem, a threat, a source of insecurity. Risk

seventeenth century and probably comes from a Spanish nautical term meaning to run into danger or to go against a rock.” See Giddens, *The Consequences of Modernity*, 30. Luhmann discusses the origins of the term and the concept risk in Niklas Luhmann, *Risk: a Sociological Theory* (New York: Routledge e-book, 2017); 8-11.

<https://doi.org/10.4324/9781315128665>.

¹¹ Bernstein, *Against the Gods*, 8.

¹² *The Concise Oxford Dictionary*, 8th ed., s.v. “Risk.”

¹³ *Merriam-Webster Online*, s.v. “Risk.” Accessed July 2017, https://www.merriam-webster.com/dictionary/risk?utm_campaign=sd&utm_medium=serp&utm_source=jsonld

¹⁴ Garland, “The Rise of Risk,” in *Risk and Morality*, ed. Richard V. Ericson and Aaron Doyle (University of Toronto Press: Toronto, 2003), 50.

is a pleasure, a thrill, a source of profit and freedom. Risk is the means whereby we colonize and control the future. “Risk society” is our late modern world spinning out of control.”¹⁵

It may thus appear as though risk, being so many things at once, is nothing in particular. Yet all of these meanings are related historically. All form a cluster of relations which will be apparent in the following account of the rise of risk as a central element of modernity. This is because modernity itself is about calculation, commodification, capital, governmentality, objectivity and subjectivity, insecurity and freedom, and the compulsive character of the impulse to control.

Above all, to understand what makes risk modern, we must compare it with danger. Dangers exist whether we know about them or not. Risks, however, cannot exist without an awareness of them. Risk is an intentional inquiry into or a measurement of the likelihood of a (future) exposure to dangers. As Giddens puts it, risk is a danger that is “actively assessed in relation to future possibilities.”¹⁶ The eye that recognizes risk is necessarily a measuring, assessing eye. As Garland points out, there are no “unmanaged” risks, for the awareness of risk is already a kind of management. A “Risk Society” is therefore “characterized by a heightened awareness of risk,” and by “efforts to know and control that risk.”¹⁷

This chapter charts the emergence and development of this awareness of risk, and of efforts to control it, from the late seventeenth century to the turn of the nineteenth century. I concentrate

¹⁵ Garland, “The Rise of Risk,” 49.

¹⁶ “Anthony Giddens and Christopher Pierson, *Conversations with Anthony Giddens. Making Sense of Modernity* (Cambridge: Polity Press, 1998), 101.

¹⁷ Doyle, “Trust, Citizenship and Exclusion in the Risk Society,” 7.

on a period of cultural and intellectual transition between the 1660s and 1800, when risk was first measured, objectified, exploited and managed by mathematicians, state actors and the “moneyed men” of the market. In the early eighteenth century, quite separately from continuing advances in probability theory, London became a bustling centre for both speculative financial investments and insurance schemes. Because they focused a calculating eye on future events, these activities were deemed impious deviations from faith in divine providence and were heartily opposed by many moral, religious and political authorities. The management of risk would not begin to be viewed as legitimate until the end of the eighteenth century, when the culture began to accept the role of chance in the events of the world, and when a new faith appeared: faith in the objectivity of the sciences and the authority of expert knowledge and abstract systems.

Games of Chance: Pre-modern Forerunners to Risk

Emerging in the latter decades of the seventeenth century were a host of apparently unrelated practices which were characterised by risk: financial speculation, lotteries, annuities, insurance contracts and institutions. Each of these involved placing a stake on the future in order to secure or to avoid, to profit or protect from uncertain outcomes. Like gambling, these activities courted the favour of chance. Indeed, for much of this period speculation, insurances and lotteries were so closely affiliated with gambling that they were likewise condemned by moral and legal authorities. In time, however, these activities would come to be distinguished from gambling as they developed alongside a new, “objective” scientific epistemology, modern techniques of statecraft aimed at managing large populations, and the commodification of capital in the emerging market society. Together, such practices constituted a modern response to the uncertainty of future events.

And yet, none of these practices were, in themselves, entirely novel. It may help us to define more sharply the modernity of “risk”, if we look first at some of the forerunners of these

practices. The oldest of these seems to be gambling itself. The odds are not long that games of chance have been around as long as modern humans have. One of the strongest indications that this is so, is that archeological digs have uncovered astragali or “tali” -the ankle-bones of deer, sheep or oxen- in human settlements around the world. These bones are considered the forerunner to modern dice, because when they are thrown, they can only land on one of four flat sides. Engravings and paintings in Egyptian, Sumerian and Assyrian sites depict the tali being used in much the same way as dice are today. The tali and the depictions of their use date back at least as far back as 3000 BC.¹⁸ Meanwhile, there is some evidence that card games were used in Asia at as early as the Tang Dynasty (618-907).¹⁹

In these early incarnations, the function of cards, dice and other games of chance went beyond mere recreation. They were often central to rituals of divination. They were essentially spiritual tools for prophecy, for attaining foreknowledge of future events, or divine guidance in decision-making.²⁰ Because they were contingent upon the future- a realm invisible to human eyes- games of chance were a way of mediating between human and divine realms. Thus, the early card games in both Asia and Europe were primarily employed in the telling of fortunes.²¹ Meanwhile, dice games in ancient Greece reflected that culture’s prevailing attitude of submission to the fate

¹⁸ Vincent T. Covello and Jeryl Mumpower, ed. “Risk Analysis and Risk Management: A Historical Perspective,” in *Risk Evaluation and Management* (Plenum Press, New York, 1986), 519- 521, and Bernstein, *Against the Gods*, 1.

¹⁹ Andrew Lo, “The Game of Leaves: an Inquiry into the Origin of Chinese Playing Cards,” *Bulletin of the School of Oriental and African Studies* 63, no. 3 (2000): 397-400.

²⁰ David Schwartz, *Roll the Bones: the History of Gambling* (New York: Gotham Books, 2006) 6; and Bernstein, *Against the Gods*, 13.

²¹ Bernstein, *Against the Gods*, 13.

that governs the world. Indeed, as Bernstein notes, a dice game features in the first scene of the origin story of Greek mythology, wherein “three brothers rolled dice for the universe, with Zeus winning the heavens, Poseidon the seas, and Hades, the loser, going to hell as master of the underworld.”²²

One game of chance that has endured for millennia is the lottery. In lotteries, the outcome is known- prizes will be won. What isn't known is who will win them. Participants risk the price of a ticket, or “lot,” for the chance of winning a share in the accumulated proceeds. The word ‘lottery’ derives from old English ‘hlot’ meaning “an object used to determine someone’s share,” but c. 1300, “lot” also meant “that which is given by fate, God, or destiny.”²³ Lotteries thus retain some connection to divine knowledge and fate, which were so central to early games of chance. However, they have also long been used as a tool by states in order to extract revenue from governed populations. One form of lottery, Keno, is descended from the Chinese betting game *baige piao*, dating from the Han dynasty (206-BCE-220 AD). Apparently, proceeds from *baige piao* helped to finance government projects, such as the building of Great Wall of China.²⁴ Other games working on the same principle, the drawing of lots, are referred to in texts from the same

²² Ibid, 16.

²³ Online Etymological Dictionary, s.v. “lot (n.)” Accessed July, 2017.
https://www.etymonline.com/search?q=lottery&source=ds_search

²⁴ *Encyclopaedia Britannica Online*, s.v. “Keno,” Accessed July 2017, www.brittanica.com/topic/keno. *Baige piao*, meaning “white pigeon ticket,” was named for the homing pigeons around which the game centred. Also See, Thomas A. Parmalee, *Legalized Gambling* (Minneapolis, MN: ABDO, 2011), 15.

period. The Romans also had lotteries, and in England, the first chartered lottery was during Queen Elizabeth's reign, in 1569, with the purpose, again, of raising funds for the public works.²⁵

Nor was the management of risk in economic pursuits, either by pooling resources, or spreading or transferring risks a novelty introduced in early modern Europe. There is evidence that as early as 7,000 BC, Chinese merchants avoided depending on the fate of one ship, and instead literally spread the risk of lost cargo by sending their wares in multiple vessels.²⁶ And the Babylonian Hammurabi Code of 1790 BC is widely considered a forerunner of socialized insurance, for it decreed that farmers' debts be forgiven in years in which their crops were destroyed by floods.²⁷ Similarly, Roman and Greek merchants who sent their wares by sea would not have to pay debts on loans if the ships were lost at sea.²⁸

What Makes Risk Modern?

If pre-modern peoples gambled or risked small amounts of money for large but unlikely windfalls, agreed to forgive debts for those who suffered misfortunes, and managed the risks of trading by transferring or spreading risks, what, after all, makes risk an especially modern concept? For Bernstein, the difference between these early activities and the risk related activities which emerged in late seventeenth century Europe can largely be explained by the quantitative turn that took place in the west in the intervening centuries. Like Crosby and Srnicek, whose accounts of

²⁵ Roger Munting, *An Economic and Social History of Gambling in Britain and the USA* (Manchester and New York: Manchester University Press, 1996), 13.

²⁶ David Rowell and Luke B. Connelly, "A History of the Term "Moral Hazard," *The Journal of Risk and Insurance* 79, no. 4 (December 2012), 1053.

²⁷ Rowell and Connelly, "The History of the Term 'Moral Hazard,'" 1053.

²⁸ *Ibid*, 1054.

the rise of quantification I related in the second chapter, Bernstein sees the adoption of the Hindu-Arabic numerals in the twelfth century as the crucial first step towards a quantitative culture. While it would take centuries for it to wholly displace roman numerals, the Hindu-Arabic numeric system offered benefits that were first recognized by merchants, bookkeepers, and scholars.²⁹

Perhaps the most important novelty of Hindu-Arabic numbers was the concept of zero. Zero allowed for ““use of only 10 digits, zero to nine” so that “a sequence of numbers like 1, 10, 100, would indicate that the next number in the sequence would be 1000. Zero makes the whole structure of the numbering system immediately visible and clear.”³⁰ The simplicity of the system meant that calculations could be made without using an abacus. Instead, by “pen reckoning” an infinite number of steps in a calculation could be recorded, which meant that far more complex calculations were possible. Because the zero to nine were repeatable, they could serve as a sort of universal equivalent- a general standard by which different entities such as such as weights, or currencies, could be converted, an advance that was essential to long distance trade.³¹ Being clear and predictable, the law-like regularity of this system allowed for greater confidence in projects that extended not only over distances, but into the future.

²⁹ Bernstein, *Against the Gods*, 20-25.

³⁰ Bernstein, 32-3

³¹ Nick Srnicek, "Abstraction and Value: The Medieval Origins of Financial Quantification" in *Speculative Medievalisms: Discography*, ed. Eileen, A. Joy, Anna Klosowska, Nicola Masciandero and Michael O'Rourke, (Brooklyn, N.Y.: Punctum Books, 2013), 76-9 and 81-2, and Alfred W. Crosby, *The Measure of Reality: Quantification in Western Europe: 1250-1600*, (Cambridge: Cambridge University Press, 1997) 113-115.

But the ascendance of a quantitative interpretation of reality was not the only necessary precondition for modern risk. As Bernstein makes clear, there were cultural attitudes that had to change too: there would have to be a greater belief that human agency could trump fate, and that the future could be deciphered and made malleable.³²As we have seen in chapter three, this striving stance towards the world and the future was evident in the culture of improvement that pervaded eighteenth century England. Bacon, his disciples in the Hartlib Circle and the Royal society, and many others, concentrated on a future improved by human design. By exhaustively accumulating quantitative data and empirical evidence they sought to progress through greater stages of certainty. This ambition to convert all that was unnamed and unseen into an accumulation of units of knowledge was part of what Foucault has called the Classical episteme. It is the transition to this form of knowledge which makes probability possible.

The Emergence of Probability Theory

As I discussed in chapter two, in the Renaissance episteme which prevailed in Europe until the seventeenth century, knowledge was a matter of interpretation, of deciphering signs to uncover “a language which God had previously distributed across the face of the earth. The object of its divination was divine”. From the seventeenth century on, the “entire organization of signs” and their conditions changed.³³ Knowledge was no longer a matter of discovering the affinities between all things, but rather of distinguishing between and ordering the things represented by signs.

³² Bernstein, *Against the Gods*, 20-21.

³³ Michel Foucault, *The Order of Things: An Archeology of the Human Sciences* (Vintage Books: New York, 1973), 58-59.

Foucault explains that “the sign ceases to be a form of the world, bound to what it marks by the solid and secret bonds of resemblance, affinity” but now exists separately from it. “Knowledge breaks off from its old kinship with divinitio” when the condition arises in which “the sign can only be constituted by an act of knowing.” What this means is that there are no pre-existing signs “out there” to be uncovered and deciphered, nor can there be any as yet “unknown signs” or “mute marks.” The accuracy, the certainty, or “truth” of signs are no longer derived from an external source- such as an underlying cosmic design- but from this mode of knowledge itself: representation. In the classical age, “knowledge having enclosed the signs within its own space, is now able to accommodate probability”.³⁴

In *The Emergence of Probability* Hacking draws on Foucault’s description of the classical episteme to explain how the notion of probability was transformed in the 1660s. Previously, he argues, claims to knowledge were either supported by demonstrations of certainty- as in the high sciences such as astronomy -or by the “moral certainty” given by the testimony or consensus of respected authorities. In the latter case, those notable for their “probity” or important thinkers from the past lent legitimacy to a knowledge claim. However, Hacking notes that in the seventeenth century a different understanding of probability emerges from low sciences such as medicine and alchemy, in which signs themselves become evidence. “What happened to signs, in becoming evidence, is largely responsible for our concept of probability.”³⁵

³⁴ Foucault, *The Order of Things*, 59-60.

³⁵ Hacking, Ian, *The Emergence of Probability: A Philosophical Study of Early Ideas About Probability, Induction and Statistics* (London: Cambridge University Press, 1975), 35.

Hacking argues that before the birth decade of probability in the 1660s, there had been “isolated calculations on chances” but one necessary precondition had been lacking.³⁶ This was inductive, or what Hacking also calls ‘Internal evidence,’ “that by which one thing can indicate contingently, the state of something else”. This distinction between external evidence of testimony and internal evidence of probability is first articulated in the 1662 treatise *Logic*, a work put out by the Port Royal Monastery with which Blaise Pascal was associated.³⁷

These new notions of evidence and probability constituted the kind of knowledge which according to Foucault, “encloses signs within its own space” and this is perhaps the most essential change which took place in the 1660s, ushering in a new era of “risk management.” However, the rise of probability theory is a specifically mathematical story, to which I am unable to do much justice. In fact, the circumstance in which probability theory was born was highly theoretical and playful rather than practical: in a mathematical contest.

For more than a century, those who studied dice games and combinations had tried to solve a puzzle first proposed by Luca Pacioli In 1494 : In a game of balla, wherein the winner is the first to win 10 sets, the two players have to terminate the game before it is finished. One is leading the other in the score by 7 to 3. The question was, how could the stakes be divided ethically, based on the mathematical likelihood that the leading player would have gone on to win the game? This, the “problem of the points”, was itself derived from an ancient source³⁸. The answer had eluded all of those who had tried to solve it. The solution had to wait until 1654, when French aristocrat,

³⁶ Hacking, *The Emergence of Probability*, 49.

³⁷ Ibid, 47

³⁸ Bernstein, *Against the Gods*, 42-3.

gambler and enthusiast of mathematics, Chevalier de Mere challenged two leading mathematicians, Pierre de Fermat, and Blaise Pascal, to solve the problem. Their solution involved the listing of all possible outcomes, an exhaustive effort made easier by Pascal's "triangle" in which numerical patterns allowed for step by step proofs by induction of estimated outcomes. From the predicted outcomes Pascal and Fermat could calculate the proportion of the prize which should go to each player. The analysis that Pascal and Fermat brought to the problem of the points was, according to Bernstein, a "form of forecasting [that] held the key to a systematic method for calculating the probabilities of future events" and brought us "to the threshold of the quantification of risk."³⁹

Real World Applications of Probability Theory

While Bernstein suggests that many of the "major problems of probability analysis had been resolved" by the end of the seventeenth century, these early solutions were purely theoretical, mathematical exercises focused solely on games of chance.⁴⁰ Those who continued to work on probability over the next two centuries expanded their analysis of probability so that it could be applied to real world problems. Among other things, this involved wrestling with the subjective element of probability, that is, the degree of one's belief that something is probable. Subjective probability is, as Daston puts it, "the sense of probabilities rooted in states of mind" rather than "states of the world."⁴¹ In fact, Hacking has argued that this subjective response to probable

³⁹ Ibid, 43; 70.

⁴⁰ Ibid, 56.

⁴¹ Lorraine Daston, "How Probabilities Came to Be Objective and Subjective," *Historia Mathematica*, 21 (1994):, 333.

outcomes is an inherent part of the *dual* understanding of probability which emerged in the mid seventeenth century. On the one hand, probability was “statistical”, in the sense that it involved finding patterns or laws within chance processes. Thus, the analysis of probability focuses on “the frequency of a particular outcome among all possible outcomes.” On the other hand, Hacking notes that it is also epistemological, for it involves assessing reasonable degrees of belief in the likelihood or expectation of a particular outcome.⁴² To understand this latter, “subjective” element of probability, theorists also had to pay attention to how decisions are made when there is a degree of uncertainty about an outcome. It involves not only the analysis of risk but also its *management*.⁴³

Already in Pascal’s *Pensees* and in the Port Royal *Logic* the topic of *utility* and its variability had been introduced. That is, they recognized that decisions related to probability depended as much on the intensity of each individual’s desire for or fear of a particular outcome as on the frequency with that outcome occurs.⁴⁴ This problem was further explored in the early eighteenth century, especially in the work of Daniel Bernouilli. By systematically studying how different people responded to the probability of financial risks and rewards, Bernouilli discovered that “the utility resulting from any small increase in wealth will be inversely proportionate to the quantity of goods possessed.”⁴⁵ Beyond that particular insight however, his true contribution to

⁴² Hacking, *The Emergence of Probability*, 11-17.

⁴³ *Ibid.*

⁴⁴ *Ibid.*, 63-68.

⁴⁵ *Ibid.*, 68. According to Porter, this theory came to be known as “decreasing marginal utility.” See Theodore Porter, *Encyclopedia Britannica Online*, s.v. “Probability and Statistics.” Accessed August 2017. <https://www.britannica.com/science/probability>

probability theory was that he was the first to attempt to measure something as intangible as desire.⁴⁶

In roughly the same period, Daniel's uncle, Jakob Bernouilli, broke new ground by finding a way to generalize from a probability. In his *Ars conjectandi*, published in 1713, eight years after his death, Jacob Bernouilli demonstrated how the probability of an outcome can be inferred from a limited sample of data.⁴⁷ Through experiments that involved great repetition, such as tossing a coin hundreds or thousands of times and observing the result, Bernouilli concluded that the more an event is observed the less likely the average outcome of the observed events will diverge from the true average outcome of such events. This is theory known as the "law of large numbers", wherein probabilities are calculated "a posteriori," for what Bernouilli had discovered was that "under similar conditions, the occurrence of an event in the future will follow the same pattern as was observed in the past."⁴⁸ Thus, even when information is limited (for example, a smaller number of throws of the coin) the true value of the unknown quantity (such as the percentage of times the coin will come up heads) can be inferred from patterns in the observed sample. Probability, Bernouilli concluded "is a degree of certainty and differs from absolute certainty as the part differs from the whole."⁴⁹ But the more observation and data available, the closer to absolute certainty the probability will be.

⁴⁶ Bernstein, *Against the Gods*, 103.

⁴⁷ Porter, "Probability and Statistics."

⁴⁸ Jakob Bernouilli, quoted in Bernstein, *Against the Gods*, 121-122.

⁴⁹ Bernstein, *Against the Gods*, 123.

Probability theory may have involved highly advanced mathematical calculations but its implications for the real world were eminently practical. In fact it was Bernouilli's ambition to use probability theory to find patterns and make predictions in the social realm, such as finding the incidence of different diseases or estimating life expectancies.⁵⁰ As Bernstein notes, Jacob Bernouilli's theory was the crucial first step in measuring and defining uncertainty. This was a key development in the modern concept of risk, for risk is uncertainty objectified and measurement and demarcation are –as we saw in the examples of surveying and enclosing - the very gestures that prefaced the modern movement towards objectification. Knights and Vurdubakis explain: “Risk is not an intuitive category which refers back to some transhistorical condition, but is derived from specific practices of recording, measurement and calculation.”⁵¹ Such calculative practices were further refined in the centuries following Bernouilli's theory. From De Moivre, Leplace and Poisson to Gauss, Galton and Quetelet, theorists found new ways to “tame chance,” rendering uncertainty objective and societal patterns predictable and malleable to reform. Many such advances- some of which I will discuss at a later point in this chapter- would be applied to actuarialism, and to the social and economic sciences. By the nineteenth century probability theory would become instrumental to the risk management of European societies.

⁵⁰ Ibid, 119.

⁵¹ David Knights and Theo Vurdubakis, "Calculations of Risk: Towards an Understanding of Insurance as a Moral and Political Technology," *Accounting Organization and Society* 18, no. 7/8 (1993): 731.

The Adventure of Investment: 1690s to 1720s

The Trade in Risk: A Crisis in Public Finance Resolved

Long before most of these advances in probability theory, risk was already being perceived and managed in a variety of new and more immediately practical ways. By being pooled, transferred and commodified, risk was an object manipulated to desired ends, namely, the accumulation and protection of property. In England, much of this activity first took place in the 1690s. In this section I will provide a brief account of how a debt-burdened English government, ever in need of revenue, began to create new vehicles for investment in government, such as annuities, joint stock companies and banks, as well as how an investment market with flexible credit instruments developed in tandem with the strength of the state. In a very short time, and for the most part, in a very small place - London's Exchange Alley- people began to use new instruments of credit to trade in stocks, bonds, options, futures, lotteries, and annuities, and to underwrite the risks of overseas trade.⁵² Adventure was no longer solely the province of merchants sailing abroad, but could now also be taken by those at home through financial investment. To invest one's capital in the enterprises- and even the debts- of others was to take the risk of never seeing a return on that capital. But a risk is, by definition, not a certainty, and thus investors more or less gambled on a favourable, that is, a profitable outcome.

It is no coincidence that the same few streets at the centre of this wave of speculative financial investment, were also the birthplace of modern insurance in England. The purchaser of an insurance policy pays to transfer the risk attached to his own venture to the underwriter, who

⁵² A. H. John, "Insurance Investment and the London Money Market of the eighteenth Century" *Economica* 20, no. 78 (May, 1953): 139.

himself invests in the chance that a loss won't occur. Investment and insurance are therefore two sides of the same tossed coin: risk. Thus, before discussing the role of risk in modern insurance, I wish first to look first at how it began to be used and managed in public and private finance in the late seventeenth and early eighteenth centuries. Not only was investment in financial risks made both more secure and more flexible during the financial revolution, but this manipulation of risk was also the activity through which the modern English state and the market constituted themselves.

The development in the 1690s of practices which commodified both capital and the risks attached to its investment constituted what is now referred to as England's "financial revolution." Following on the heels of the Glorious Revolution, the financial revolution greased the wheels of trade with new and more flexible forms of credit and exchange.⁵³ While the merchants would benefit from these innovations the impetus behind them came largely from the government, which was desperate for revenue to fund its wars.⁵⁴ In the early modern period, European governments would raise taxes to finance their wars. But tax revenue was rarely sufficient to cover the expenses of warfare.⁵⁵ Thus it was common for governments to take on expensive short term loans from a limited pool of creditors to cover the shortfall. If revenues were perpetually outpaced by these loans, the entire system of credit was endangered.⁵⁶ This is what began to happen in England in

⁵³ For a detailed study of the rise of speculative investment and innovations in public finance, drawing on a wealth of archival research see Anne L. Murphy, *The Origins of English Financial Markets: Investment and Speculation before the South Sea Bubble* (New York: Cambridge University Press, 2009)

⁵⁴ Ian Klaus, *Forging Capitalism: Rogues, Swindlers, Frauds and the Rise of Modern Finance* (New Haven and London: Yale University Press, 2014), 33.

⁵⁵ Bruce G. Carruthers, *City of Capital: Politics and Markets in the English Financial Revolution* (Princeton, NJ: Princeton University Press, 1999), 55.

the early years of the Nine Years War. According to Carruthers, “By 1693 short-term debts had climbed to almost 6 million pounds and were threatening to overwhelm the government’s credit system.”⁵⁷ What was needed was some kind of infrastructure for long-term loans, and, following the Dutch example, this is what Parliament managed to create. Since the early seventeenth century, the United Provinces had successfully induced creditors to invest long-term in the government, primarily through the creation of a national bank and by selling life-time annuities. Now, in the 1690s, England followed suit, with Parliamentary Acts in 1693 and 1694 allowing the sale of annuities and lottery tickets and the creation in 1694 of the Bank of England.⁵⁸

Annuities were an arrangement in which the subscribers to loans were not repaid the principle, but instead, received an interest payment annually for the remainder of their lives. Because Parliament guaranteed the loans, and set aside a fund specifically for the purpose of repaying the interest, annuities were classed, along with other such long-term loans, as “funded debt,” the most popular means of investing in the “National Debt.”⁵⁹ In 1693 and 1694 sales of annuities brought in 891,900 pounds with another million pounds coming from annuities with alternative terms (2 or 3 lives, or a 96 year term). As Carruthers notes, annuities became so popular that “During Anne’s reign, the state borrowed a total of 10,403,738 pounds through the sale of various types of annuities.”⁶⁰

⁵⁶ Carruthers, *City of Capital*, 71.

⁵⁷ *Ibid*, 73.

⁵⁸ *Ibid*, 75-6.

⁵⁹ Stephen Quinn, “Money, Finance and Capital Markets,” in *The Cambridge Economic History of Modern Britain*, Volume I, edited by Floud and Johnson, Cambridge University Press (2004), 162.

Lotteries were another popular form of funded debt, one which took advantage of the public's appetite for gambling. In 1694 an Act of Parliament endorsed the raising of a further 1 million pounds through the sale of lottery tickets. Tickets for The Million Lottery cost 10 pounds and, aside from offering a range of top prizes, each ticket holder was guaranteed a return of 1 pound per year for 16 years.⁶¹ Not only did annuities and lotteries provide the government with a more affordable source of credit than that offered by short term loans, but they were also popular with creditors as relatively secure avenues for investment. Both were a form of 'pooled' risk, wherein each subscriber contributed to a "pool" of investment and the risk of loss was offset by guaranteed minimum returns.

Land was the most secure and the least liquid form of investment, being difficult to alienate and time-consuming to transfer to another party. Loans secured by mortgages were also safe and offered a better rate of return than land itself, but they too were illiquid.⁶² While they offered a degree of security, annuities and lotteries were also difficult to transfer to a third party. Thus it was that investments in joint stock companies offered creditors the ideal balance between security and flexibility, for, although the sum invested could not be redeemed, shares in these companies were exchangeable on the London stock market. Because prices on the stock market fluctuated, there

⁶⁰ Carruthers, *City of Capital*, 75.

⁶¹ Lotteries at this time were different from those in use today. By guaranteeing a small annual long term reward to every ticket holder they were similar to annuities. Not surprisingly, this form of lottery was, in the long run, a very expensive way of borrowing from the public, and the million lottery ended up costing the government nearly 2.4 million pounds in payouts. Carruthers, *City of Capital*, 76.

⁶² *Ibid*, 164-5.

was a further element of risk in liquidizing company stocks, but for many merchants and “moneyed men” the freedom to move assets quickly was a necessary part of the dynamic market.

The Bank of England was the first of three major joint stock companies of the period that served as primary sources of credit for the government and whose stock could be sold in the private financial market. The bank was established in 1694, over a million pounds having been raised by its founding investors. This sum was, in turn, immediately loaned to the government at a favourable rate. The bank gave the government permanent access to a source of short term credit, and to a host of other financial instruments.⁶³ Because company stock could be exchanged in the London market, The Bank, along with the New East India Company and the South Seas Company, established in 1698 and 1711 respectively, “embodied, in effect, the connection between the private capital market and public finance.”⁶⁴ As A. H. John points out, “the security of the English Funds enabled them in turn to be used as the basis of a pyramid of other loans within the business community.”⁶⁵ Perhaps even more important for our purposes here is that participation in these joint stock companies led to what Chaudhuri calls the revolutionary realization among the public,

⁶³ Quinn, *The Economic History of Britain*, 162

⁶⁴ Carruthers, 18, 76, 159. As Carruthers explains, all of these above-mentioned “improvements in the system of public borrowing” helped to facilitate the financial revolution. (71). Of course, it also helped that, with the increase in international trade, shipping and the captive domestic markets of colonial subjects there was a greater pool of domestic creditors than ever before. But without the incentives of the new public borrowing system, these creditors may have limited their investments to either more traditional avenues, such as landed property, or to the far riskier alternative of overseas trade. Investment in government debt was both safe and flexible. At the same time the influence ran in the other direction too, for had the London capital market not been so active and able to liquidize all sorts of assets, the joint stock company shares would have been less attractive, because less alienable (131).

⁶⁵ John, “Insurance Investment and the London Money Market,” 138.

that “corporate financial liabilities were someone else’s assets.”⁶⁶ This meant that the risk attached to lending (investing in someone else’s debt) could be transferred to another party. In effect, the risk was objectified- closed off and disembedded from its original social context as a particular debtor-creditor relationship. This ability to transfer risk was also the basis of the insurance contract.

Making the trade in debts possible and occurring alongside the innovations in public finance were a host of legal changes to property rights pertaining to debtor- creditor relations, which had the effect of commodifying these particular social obligations both in public and private finance.⁶⁷ By the 1690s, the common law had begun to incorporate the *lex mercatoria*, the law merchants, within its own framework. The result was a series of private financial instruments which eased the transfer of debts to parties outside the original loan arrangement. The earliest such instrument was the promissory note- the receipt given to anyone who had deposited gold with a goldsmith banker. As early as the 1660s holders of these notes began to use them to pay off their own debts. The notes were, in effect, like paper money. As there was, in the late seventeenth century, a recurrent shortage of coinage, the idea of paper credit became ever more attractive.⁶⁸ According to John, “the provision of a series of transferable paper assets was of great practical importance at a time when trade was expanding and when the day-to-day business of the ordinary

⁶⁶ Ibid, 137.

⁶⁷ Carruthers, *City of Capital*, 24-5, 127-134.

⁶⁸ Ibid, 128-130. According to Nuno Palma, the expansion of credit at this time would not have been possible without the increasing availability of precious metal from America. See Nuno Palma, “Money and Modernization in Early Modern England,” *European Historical Economics Society Working Paper*, 147 (February, 2019): 1.

merchant comprised a variety of financial activities, such as acceptance, discounting, foreign exchange, underwriting and stockjobbing.”⁶⁹ By offering shares in the bank of England and the New East India Company that could be converted into promissory notes, the government was thus “committed to a role of fundamental importance in the nation's economy. For the paper assets thus created formed the basis upon which the English money market was built.” Without them, the speedy accumulation of capital needed for all of the projects and schemes of the early eighteenth century- including insurance- would not have been possible.⁷⁰

As Carruthers argues, “the processes of market formation and state development were linked together.”⁷¹ The ability to borrow on transferrable securities had allowed Britain to transform itself from a “weak nation state and second rate military power” in the 1670s to a political-military powerhouse, with a thriving capital market in London, by the second decade of the eighteenth century.⁷² Out of this same process, practical risk management methods were developed, in the form of investments and insurance.

Frenzied Investment, the South Seas Bubble and Critiques of Credit

The irony is that, while all of these financial innovations were born out of the government’s need to increase revenue, in the longer term they only deepened that need. That is, the extending of the government’s access to credit really meant extending its debt. Once it had started on this path the

⁶⁹ John, “Insurance Investment and the London Money Market,” 138-9.

⁷⁰ Ibid, 138.

⁷¹ Carruthers, *City of Capital*, 17.

⁷² Ibid, 8.

government needed to raise ever more revenue through taxes to pay the interest on all of its loans.⁷³ As Carruthers notes, there was a political advantage to many of these debts, since it was in the interest of those who had invested heavily in the government to support the governing party politically.⁷⁴ Nevertheless, by “1710, barely two decades removed from the glorious revolution, the government found itself drowning in unsecured debt...with long term obligations around 20 million pounds.”⁷⁵ Had that not been the case, the South Sea Company- and its infamous bubble- might never have been created.

When the Tories took power in 1710 the new Chancellor of the Exchequer, Robert Harley, discovered that the previous government had left him with a debt of 8 million pounds. As a newcomer, and a Tory, he was denied loans by both the Bank of England and The East India Company, since both were controlled by Whigs.⁷⁶ Thus it was that he, along with John Blunt, established a new joint stock company, which could draw investors into its trade in the South Seas. The South Seas Company was just one of hundreds of new schemes attracting investment in the 1710s, schemes that ranged from legitimate and practical to outlandish and fraudulent. Now, an ever greater number of people, from ever more sections of society, were being drawn to the activity of investing and pulled by the current of credit. But as Klaus notes, novel financial developments also came with “a profound distrust of credit, debt, and financial innovation, a position that came

⁷³ Ibid, 73, 75. Carruthers explains that “in 1713, for example, about 45% of total expenditures went to debt repayments, which underscores not only how much debt the British government had accrued, but how necessary higher taxes were to service that debt.”

⁷⁴ Ibid, 3-7.

⁷⁵ Klaus, *Forging Capitalism*, 34.

⁷⁶ Malcolm Balen, *A Very English Deceit: the South Sea Bubble and the World's First Great Financial Scandal* (London and New York: Fourth Estate, 2002), 18-19.

to be known as the ‘country’ ideology.”⁷⁷ “Stock jobbers” and “moneyed men” were condemned as self-interested con-men whose practices injured the public good. It did not help that the stock market had a disproportionate number of outsiders working within it, such as merchants, Jews, and foreigners. And because credit seemed to spring suddenly from an invisible source, it appeared to some as a kind of sinister alchemy.⁷⁸

These criticisms did little to stop the fervour for investing, and once the South Seas Company began to sell its shares in 1710, the effect was like a great gust of wind on an already raging fire, igniting new schemes for investment in all new directions. The very novelty of the new company may have been its source of attraction. Then, in 1720, “the year of the bubble,” misleading rumours deliberately stirred speculative frenzy to new heights, and the company’s stock rose by nearly 500% between January and June, from £ 128 to £1050.⁷⁹ The problem was that the South Seas Company actually did very little trade in the South Seas. It was more like a

⁷⁷ Carruthers, *City of Capital*, 35.

⁷⁸ These charges usually came from the Tories, associated as they were with the traditional wealth of the landed gentry, yet even some Whigs were suspicious of credit and the stock market. Defoe, for example, who had praised the innovation and ambition of his time in “An Essay upon Projects” nevertheless viciously attacked the activities of Stock-Jobbers in “The Anatomy of Exchange Alley”. Jobbers, he argued, were “a publick Nusance”, “harden’d in Crime”, “a Confederation of Userers”, whose trade was “founded on Fraud, born of Deceit, and nourished by Trick, Cheat, Wheedles, Forgeries, Falsehoods and all sorts of Delusions” He declares that “Stock Jobbing is Play: a Box and Dice may be less Dangerous, the Nature of them are alike, a Hazard”. Daniel Defoe, *Anatomy of Exchange Alley, Or a System of Stock-Jobbing* (London: E. Smith, 1719) 3; 43, Accessed at <https://books.google.com>. For a fascinating account of the intellectual discourse on credit as a form of alchemy, in late seventeenth and early eighteenth century England please see Carl Wennerlind, *Casualties of Credit: The English Financial Revolution, 1620-1720* (Cambridge MA: Harvard University Press, 2011).

⁷⁹ Richard Dale, *The First Crash: Lessons from the South Sea Bubble* (Princeton: Princeton University Press, 2004), 107-110.

Ponzi scheme and it ended as such schemes have to end: the bubble burst and thousands were ruined. To critics of the alchemical process of credit, this disaster was a divine judgement on the hubris and greed which had fuelled the frenzy of investment. But if it was a story like the Tower of Babel, it didn't end in the same way, with the building blocks scattered to the winds. Instead, in the wake of the South Seas Bubble, although the government enacted legislation that would give it more control, financial investment and the stock market were there to stay. The state and the market had been forged together through the alchemy of credit and the manipulation of risk.

Early Insurance Schemes

Lombard and Cornhill streets in central London, where the stockjobbers, brokers, and 'moneyed men' met in coffeehouses, were likely as grey and sooty as the rest of the city. But socially, this was as richly oxygenated a climate as the tropical lands that were the source of the stimulating brew served in the coffeehouses. 'Change alley' was lively and restless, busy with new growth, teeming with both possibilities and dangers. As the eighteenth century unfolded that energy and excitement spread throughout the country as ever more people were caught up in schemes and subscriptions, 'contributorships' and 'little goes,' all lured by the adventure of investment.

That the vibrant climate of Exchange Alley was one of the key nurseries of modern insurance may seem unlikely to us today, associated as the industry is with the boredom and chill of calculating and impersonal bureaucracy.⁸⁰ To describe how insurance has evolved from its

⁸⁰ While this setting was certainly central to the development of the insurance trade, Dutch insurance markets preceded those in England by decades. On the Dutch insurance market, see J. de Vries and A. van der Woude *The First Modern Economy. Success, Failure, and Perseverance of the Dutch Economy, 1500–1815*. (Cambridge: Cambridge: University Press, 1997). Moreover, insurance has another origin story that I do not explore here, but which is related to insurance's beginnings in bottomry for merchant vessels. This is the insurance on the lives of slaves as property, or "cargo" on ships travelling to North and South America. In the eighteenth century most legal strictures preventing insurance on the lives of third parties made an

beginnings at the turn of the eighteenth century as just as one of a host of daring and faintly heretical ventures unfolding in the frontier atmosphere of Exchange Alley, to its towering presence today as a monument to orthodoxy, is also to describe the modern effort to domesticate the wild terrain of the future. This effort, as we will see in chapters five and six, has not always produced the desired outcome. What it has achieved is a consolidation of the power of state and the institutions of the market over populations, and a greater cultural acceptance of the role of chance in nature and society and of the ability of scientific knowledge to predict the patterns within it.

As has already been mentioned at the beginning of this chapter, the basic function of insurance, the spreading of risk, is not itself modern. What makes insurance modern is risk distribution through commodification and the increasing distance between the party transferring the risk and the party undertaking it.⁸¹ In England, the first “modern” insurance schemes arose in response to two risks of particular concern at the end of the seventeenth century. One was the susceptibility of merchant vessels to a multitude of dangers on their journeys at sea. The other was the threat of devastation to property posed by fire, a threat emphatically demonstrated in the London Fire of 1666.

Of these two, the coffeehouse origins of Maritime insurance is the better known, particularly Lloyd’s coffeehouse, which has evolved into today’s “insurance market”, Lloyds of

exception in the case of slaves. On this troubling and forgotten history see Geoffrey Clark, “The Slave’s Appeal: Insurance and the Rise of Commercial Property,” in *The Appeal of Insurance*, eds. Geoffrey Clark, Gregory Anderson et al. (Toronto: University of Toronto, 2010); Tim Armstrong, “Slavery, Insurance, and Sacrifice in the Black Atlantic,” in *Sea Changes: Historicizing the Ocean*, ed. Bernhard Klein and Gesa Mackenthun, (London: Routledge, 2012); and Karin Lurvink, “Underwriting Slavery: Insurance and Slavery in the Dutch Republic (1718–1778),” *Slavery & Abolition* (2019): 1-22.

⁸¹ Bernstein, *Against the Gods*, 92.

London. Established in 1687 and relocated to Lombard St. in 1691, Lloyd's coffeehouse began as the preferred meeting place of merchants and ship-owners. Here they exchanged the latest news affecting their trade, including the potential dangers of particular political conditions, piracy, weather or currents likely to be encountered on certain trade routes.⁸² Some of this essential information also came from the long experience of the retired ship captains who frequented the coffee shop.⁸³ By the late 1690s, Edward Lloyd regularized this flow of information by publishing a daily shipping newsletter, "Lloyd's list." Such up-to-date information was indispensable for those trading in the risks attached to maritime trade. It allowed the underwriters of risk (so named because they signed their names under the terms of the insurance contract) to assess the likelihood of a return or a loss on the venture in order to determine an appropriate premium for the contract.⁸⁴ The risk was not simply transferred from one party (the ship owner) to another, but through a broker, it was shopped around to potential risk-takers at the various coffeehouses. By the turn of the eighteenth century Lloyds had become the headquarters for underwriters of maritime insurance contracts.⁸⁵

Along with the trade in maritime insurance, the 1680s and 90s also witnessed the first schemes for the insurance of properties from the risk of fire. In England, these arose in response

⁸² Ibid, 88-9.

⁸³ Jeremy A. Herschaft, "Not Your Average Coffee Shop: Lloyd's of London-A Twenty-First-Century Primer on the History, Structure, and Future of the Backbone of Marine Insurance," *Tulane Maritime Law Journal* 29, no. 2 (2005) 171.

⁸⁴ Dale, *The First Crash*, 13.

⁸⁵ Bernstein explains that, "in 1720 King George established Royal Exchange Assurance Corporation and London Assurance Corporation as the two exclusive insurance companies of England- but privately individuals could continue underwriting." Bernstein, *Against the Gods*, 90.

to The Great Fire that swept through London in 1666, destroying 13,000 properties and leaving 100,000 homeless.⁸⁶ A year after the fire, architect Christopher Wren opened up a fire insurance office, which began selling policies in 1670.⁸⁷ In the years that followed, new building regulations were enacted with the aim of preventing the spread of fire.⁸⁸ Meanwhile, the first fire insurance company in England, “The Fire Office,” was established in 1680 by the economist Nicholas Barbon, among others.⁸⁹ Other such companies soon followed, including the Friendly Society, established in 1683, Amicable Contributors and Hand-in-Hand Fire and Life insurance in 1696, and the still existing Sun Fire Insurance in 1710.⁹⁰ For the most part, these earliest forms of fire insurance were localized, private and independent, and they were based on mutual aid rather than intended as profitable enterprises.⁹¹ Mutual aid societies involved the pooling of individual contributions into a community fund that could be used for fire-fighting and rebuilding efforts. Other insurance schemes – including fire insurance- were launched as for-profit ventures during the fever for new projects in the decades leading up to the South Sea Bubble, but many of these

⁸⁶ Pietro Masci, “The History of Insurance: Risk, Uncertainty and Entrepreneurship,” *Journal of the Washington Institute of China Studies* 5, no. 3 (Spring 2011): 32.

⁸⁷ J. Matthias Graf von der Schulenburg and Christian Thomann, “Gottfried Wilhelm Leibniz’s Work on Insurance” in *The Appeal of Insurance*, ed. Geoffrey Clark, Gregory Anderson et al. (University of Toronto: Toronto, 2010), 46.

⁸⁸ Robin Pearson, “Fire, Property Insurance and Perceptions of Risk in Eighteenth-Century Britain,” in *The Appeal of Insurance*, ed. Geoffrey Clark, Gregory Anderson et al. (Toronto: University of Toronto, 2010), 85-6.

⁸⁹ J. Francois Outreville, *Theory and Practice of Insurance* (New York: Springer Science and Business Media LLC, 1998), 17-18.

⁹⁰ Graf von der Schulenburg and Thomann, “Gottfried Wilhelm Leibniz’s Work on Insurance,” 45.

⁹¹ John, “Insurance Investment and the London Money Market,” 137.

failed. Nevertheless, according to John, there were 14 friendly societies in London by 1760, and 30 by the end of the century and the majority of these were for fire insurance.⁹²

Growing membership in “friendly” or “mutual” societies offering fire insurance was largely due to the public’s greater exposure to information through the proliferation of print media. According to Pearson, “eyewitness reports of earthquakes, floods and fires, given publicity by a growing pamphlet and newspaper press from the late seventeenth century, pushed these events into the popular consciousness, and raised awareness among the educated and propertied classes of the need for preventative and remedial action”⁹³

Although the legitimacy of private property had been bolstered by the settlement reached at the end of the Glorious Revolution of 1688, by the early eighteenth century it was still by no means deeply enough rooted as a social institution to have eluded all forms of uncertainty. As I have argued in the preceding chapters, private property is a manifestation of the modern attempt to delimit and claim spheres of certainty and control by excluding the uncertainties of the wider environment. And yet, following Bauman, modernity’s ordering imperative only creates new forms of ambivalence, thus necessitating the continual work of boundary construction and maintenance. In the case of private property, there can be few better illustrations of its vulnerability to destruction and loss than the specter of fire. Especially in the crowded conditions of the cities, the privately owned dwelling could not be insulated from the uncertainty of the complex social environment surrounding it. Urban fires, like the great fire of 1666, were levelling forces, as contagious as plague, spreading without regard to class or status. Thus, according to Pearson, fire

⁹² Ibid, 137.

⁹³ Pearson, “Fire, Property Insurance and Perceptions of Risk,” 95.

“could be viewed as a social as well as a physical and economic hazard, and efforts at fire prevention, fire education and improvements in firefighting could be seen as ...a prophylactic against social disorder, while fire insurance offered some financial security against the threat to property.”⁹⁴

In spite of increasing public awareness of the importance of both preventing fires and insuring one's property against fire's effects, it was not until the last quarter of the eighteenth century that fire insurance schemes became at all common in England or in other European countries. This cultural diffidence towards insurance was especially evident in attitudes towards life insurance and the widows' and orphans' funds that preceded it.

Opposition to Insurance

In fact, there were a number of reasons for the eighteenth century cultural ambivalence towards insurance; aside from the bare fact of its novelty, there was its association with gambling and speculation, with usury, with fraudulent schemes which took advantage of the poor, and its disturbing attempt to quantify and commodify things which had never before been quantified. But beneath all of these qualms was the threat that insurance posed to the long embedded belief that the future unfolded as an expression of God's will. It was not natural, for example, for people in the eighteenth century to think of fire as an event caused by, and subject to control by, human activity. For most of human history it was precisely because of the unexpected and incomprehensible nature of catastrophes such as fire, plague, droughts and floods that people attributed them to the will- whether capricious or wise-of a deity. In the Judeo-Christian and Islamic traditions calamitous events were a primary means by which the wisdom of the divine was

⁹⁴ Ibid, 95.

communicated. A natural disaster was both a judgement and a corrective to human behaviour. Thus in Germany, where fire insurance schemes predated those in England by decades, an early seventeenth century initiative for insuring against fire was quelled by the region's governing Count because "a fire insurance company is an act against God's right of providence." In fact, the notion that fire was "god's instrument" and that insurance was "amoral," persisted among the German clergy until well into the nineteenth century.⁹⁵

This providential outlook was also prevalent in the way that people thought about the early life-insurance schemes, called widows' and orphans' funds, in early eighteenth century Germany. Reviewing the public debates and court testimony surrounding the failure of one such scheme in 1720, Rosenhaft has found that, rather than focusing on who was to blame for the failure and what calculations and planning should have been used in the scheme, the emphasis in most arguments was on the relationship of the scheme, and its failure, to God's plan. The *Christliche Gesellschaft zur Versorgung von Witwen und Waisen* (the Christian Society for the Maintenance of Widows and Orphans) was established in Lunenburg Germany in 1710 and involved the pooling of subscriber's contributions, with a portion to be paid out to each family suffering the loss of life

⁹⁵ Graf von der Schulenburg and Thomann, "Gottfried Wilhelm Leibniz's Work on Insurance," 45. The persistence of the belief that disasters were primarily about edification and atonement, is also evident in England. As late as the mid-nineteenth century, when insurance and its techniques and calculations were widely accepted, the nation was asked to observe a day of atonement for the great famine in Ireland, atonement not for the colonial exploitation that caused the famine, but for the sin of insufficient faith in providence. As Boyd Hilton explains, the famine was understood by members of the politically powerful evangelical Anglicans known as the Clapham sect, to be God's judgement against the Irish people, for their intransigent Catholicism. See Boyd Hilton, *The Age of Atonement: The Influence of Evangelicalism on Social and Economic Thought, 1795–1865* (New York: Oxford University Press, 1988).

of the male subscriber.⁹⁶ In its written constitution the aims of the fund were expressed only within the limits of a larger deference to God's plan. That is, they hoped that God might bless the fund with success or, should He choose to send them a pestilence, that they might endure the punishment. As Rosenhaft points out, the main hazard to the scheme imagined by its founders was the natural hazard of epidemic disease, which might lead to more claims upon the fund than could be covered by the pooled contributions. As such a calamity would clearly be an expression of Divine judgement, to directly hope for its avoidance would be to lack faith in His wisdom: they could only hope that the scheme might somehow survive.⁹⁷

In 1720, when the fund's managers realized that the shrinking number of subscribers could not cover the claims of 55 widows, they decided to terminate the fund, and to return the invested capital to the subscribers. The widows considered this a breach of contract and litigated against the fund managers and the subscribers. But their key argument was Christian and providential: the subscribers, by wishing to pull out of the fund, were guilty of a lack of trust in God. Conversely, it was suggested that if they remained, God would reward them.⁹⁸

In the arguments of all those concerned, Rosenhaft finds an "uncertainty about what had happened" to make the fund untenable, and this uncertainty "extended to an ambivalence about the very legitimacy of individual claims to agency, whether practical or moral."⁹⁹ While the fund's

⁹⁶ Eve Rosenhaft, "How to Tame Chance: Evolving Languages of Risk, Trust, and Expertise in Eighteenth-Century German Proto-Insurances," in *The Appeal of Insurance*, ed. Geoffrey Clark, Gregory Anderson et al. (Toronto: University of Toronto, 2010), 16-17.

⁹⁷ Rosenhaft, "How to Tame Chance," 23.

⁹⁸ *Ibid*, 24.

⁹⁹ *Ibid*, 25.

founders and managers had tried to ensure that it was overseen responsibly and without corruption, neither they, nor the other interested parties seemed willing to assign the cause of the failure to the judgement of any persons. Instead, “they appealed to no authority but god.”¹⁰⁰ The views of those involved in the *Christliche Gesellschaft zur Versorgung von Witwen und Waisen* were not unique. They corresponded to a wider cultural tendency in early eighteenth century Europe: a marked discomfort with the application of calculative reason towards future events.

This discomfort was most apparent in the cultural response to life insurance and its prototypes and variants such as pensions and widows’ funds, for each of these involved the calculation of and speculation on the most sacred and unknowable of human fates: the extent of life. In no other form of insurance did so many objectionable features inhere as in life insurance. The future, which was god’s territory, was trespassed upon when insurers tried to measure life expectancy and policy holders tried to hedge against their fates. The impiety of surveying and mapping the territory of the future was made all the more profane when profits were made from the schemes and lives were compensated monetarily. By putting a price on human life, insurers defied “a normative division between the marketable and non-marketable, or the sacred and the profane”¹⁰¹ Indeed, as Clark has noted, there was only one other trade in which personhood and property, human life and commodity, were so mingled: the slave trade.¹⁰² Finally, all of these transgressions were made

¹⁰⁰ Ibid, 26-27.

¹⁰¹ Liz McFall, “The Disinterested Self: the Idealized Subject of Life Assurance,” *Cultural Studies* 21, no. 4-5 (2007): 2.

¹⁰² Geoffrey Clark, “The Slave’s Appeal: Insurance and the Rise of Commercial Property,” in *The Appeal of Insurance*, eds. Geoffrey Clark, Gregory Anderson et al. (Toronto: University of Toronto, 2010).

more flagrant by the tendency of insurance to subject human life expectancy to the same whims and calculations used in gambling.

In England, the speculative nature of life insurance was most explicit in cases where people bought insurance on the lives of people with whom they had no connection. Usually, such wagers centred on public figures. Robert Walpole, for example, was once described as having a “much insured life”, and when King George II went into battle in 1743, speculators wagered on whether he would die there. One infamous example of life insurance as cynical wagering involved “800 German refugees who, in 1765 were brought to England and then abandoned without food or shelter on the outskirts of London. Speculators and underwriters at Lloyd’s placed bets on how many of the refugees would die within a week.”¹⁰³

While insurance on lives was probably at least as likely to stem from benevolent motives as from callous profit seeking, the shocking nature of the latter drew greater public attention. In fact, because insurance seemed to equate one person’s death with another’s fortune, life insurance was widely considered “an inducement to fraud and murder.”¹⁰⁴ In response to the outrage occasioned by the worst abuses of life insurance, Parliament enacted legislation that would eliminate policy holders whose interest was purely speculative. That is, only those who had an “insurable interest” in the death of a party could legally enter into a life insurance contract .The

¹⁰³ Michael J. Sandel, *What Money Can’t Buy: the Moral Limits of Market* (New York: Farrar, Straus and Giroux, 2013).

¹⁰⁴ Geoffrey Clark, *Betting on Lives: the Culture of Life Insurance in England, 1695-1775*, (Manchester, Manchester University Press, 1999), 8, 26.

gambling act of 1774 marked the first formal attempt by government to draw the distinction between immoral gambling and legitimate insurance.

It would take far more than one act of parliament to draw that distinction conclusively in the minds of the public. In fact, because the distinction was not ontological, but the work of legal and moral categorization, it would take many generations to dress the activities of insurance and financial investment in the clothing of legitimacy. Even today, whenever a crisis results in a loss of public trust in the workings of insurance or investment, that clothing drops off and they appear before us nakedly as forms of gambling.

The Sin of Gambling in a Divinely Ordered World

In the eighteenth century, the opposition to insurance on the basis of its association with gambling was closely tied to the endurance of a providential attitude towards the future. Moral repugnance towards gambling was not merely a favourite complaint of a few censorious clergymen. Rather, it was a deeply rooted cultural response to a representation of the world that directly contradicted the idea of a divine order. Only by coming to terms with the nature of the world made visible by gambling, did eighteenth and nineteenth century Europeans begin to adopt the modern notion of risk.

Although gambling of one sort or another has been a popular pastime enjoyed by most cultures in human history, it has also been widely condemned by religious authorities. Opposition to gambling has been the norm in monotheistic religions in which the order of the world is guaranteed by an omniscient god. Because all games of chance revolve around the uncertainty of the outcome, they seem to operate independently from a divine order. Chance, as the hinge upon

which all wagers are made, does not follow any design or issue from the intention of any deity. To wager on future events is to behave as though God did not exist.

Thus, it is not surprising that gambling has traditionally been prohibited in Jewish, Islamic and Christian societies, for it demonstrates a world in which chance, and not Divine will, is the moving force.¹⁰⁵ Yet, according to Brennan and Brennan, this distinction “between providence and chance was blurred” in medieval Christianity. The church condemned gambling, but it recognized “the claim that people were able to manipulate God’s grace for earthly purposes. Aquinas, Boethius and Dante all stressed that the notion of Divine providence did not exclude the operation of chance or luck.” With the challenges to the traditional church in the early modern period, “these latter views came under severe attack, in England in particular.”¹⁰⁶ Calvin, for example, denounced the prevalence of belief in chance in his day and “if there was a common theme that ran through the writings of Protestant theologians during these centuries it was the denial of the very possibility of chance or accident.”¹⁰⁷ The arguments put forth by one non-conformist minister, John Northbrook, in a 1577 pamphlet, were typical of the Protestant opposition to gambling. Gamblers, he argued, disrespectfully asked God’s favour to intercede in a profane and frivolous matter, “as though we would make God servant to our Pastymes and Sportes.”¹⁰⁸

¹⁰⁵ Reuven Brenner and Gabrielle Brenner, *Gambling and Speculation: a Theory, a History and a Future of some Human Decisions* (Cambridge: Cambridge University Press, 1990), 51-53.

¹⁰⁶ Brenner and Brenner, *Gambling and Speculation*, 54.

¹⁰⁷ *Ibid*, 54.

¹⁰⁸ Justine Crump, “The Perils of Play: Eighteenth-Century Ideas about Gambling,” (Unpublished thesis, University of Cambridge, 2004), 5.

However, there is some evidence that by the turn of the seventeenth century, the dread of admitting any element of chance in the world, or of questioning God's "determining presence" in all matters was no longer unanimous, even among the clergy. In his 1619 sermon "On the nature and uses of lots," for example, Puritan minister Thomas Gataker argued that lots themselves, as long as they were used purely in play, did not directly invoke divine intervention and that, in fact, though God's will unfolded at the global level, chance did play a role at the level of the particular. Similarly, latitudinarians and secular determinists admitted a degree of chance "at the level of a second cause." That is, from our limited human perspective, the outcomes of games or events appeared to be random, even if they were actually ultimately traceable to providence or universal physical laws.¹⁰⁹

As Crump suggests, thinking about games of chance was a valuable way of working through issues of determinism, uncertainty and choice in matters of faith and philosophy.¹¹⁰ Some, like Pascal, even went so far as to use the metaphor and logic of wagering to discuss the decision of whether or not to believe in God.¹¹¹ Only a few years later Latitudinarian theologian

¹⁰⁹ Crump, "The Perils of Play," 5.

¹¹⁰ *Ibid.*, 6.

¹¹¹ For Hacking, Pascal's wager was an even more important turning point in the history of probability than his correspondence with Fermat was, for, by contemplating the question of faith from a dispassionate position outside of theology, he demonstrated a model of a rational and calculative approach to decision and belief. Asking whether it was better to choose to believe in God or not, Pascal emphasized the utility (gravity of desired outcome) of choosing to believe rather than the likelihood of there being a God. He argued that it would be better to choose to believe, because if one wagered that he did not exist- and it turned out that he did, the outcome would be severe. In contrast, little was lost to the person who had wagered that God did exist, when it turned out he did not. See Ian Hacking, "The Logic of Pascal's Wager," *American Philosophical Quarterly* 9, no. 2 (1972): 186-188.

John Tillotson followed Pascal's model in his sermon, "The Wisdom of being Religious". Tillotson asked his listeners to "think about their spiritual choices as 'ventures' to be made after considering the 'odds,'" which suggests to Crump "that the experience of gambling had naturalized a new kind of cognition, based upon the probabilistic evaluation of possible outcomes." Yet, while some seventeenth century theologians followed the mathematicians of their time in using the language and concepts of gambling to "evolve what amounted to a new kind of epistemology based on probability," there was a backlash against this trend in the eighteenth century.¹¹² If Pascal and Tillotson used gambling "to demystify uncertainty and to negotiate its impact upon belief," eighteenth century theologians and moralists railed against it in order to reinforce the determinate nature of universe and the ubiquity of providence. For some commentators, any discussion of chance was a "deistic plot to eliminate God from the world." Gambling was the pastime of the "atheist who denied God's providence in everything, resorting instead to a sacrilegious faith in the all-determining power of chance."¹¹³

Gambling as a Threat to Social Order

The religious critique of gambling was a powerful tool in the hands of those who wanted to shut down the new practices of financial investment and insurance, for they only had to highlight their likeness to wagering and their dependence on chance to cast a shadow on their moral legitimacy. But there was another reason for the continuing attempts to suppress gambling, even as the culture was beginning to adopt probabilistic thinking. Gambling, whether in its familiar forms or in its more recent guises, seemed to bring to the surface the insecurities of a society undergoing rapid

¹¹² Crump, "The Perils of Play," 6-7.

¹¹³ Ibid, 7.

change.¹¹⁴ Just as it allowed doubt to creep into the belief in a determinate universe, it also allowed for irregular and rapid forms of social mobility which frightened the traditional holders of power.

Particularly disturbing to some was the sudden wealth that could come to *anyone* entering a lottery, for although a ticket in a state lottery usually cost 10 pounds, members of the lowest orders often bought shares as small as 1/64 in a ticket.¹¹⁵ Some feared that the involvement of the lower orders in the lottery threatened the social order. Crump cites a number of horror stories that circulated in the press in the late eighteenth century which were meant to demonstrate the dangerous implications of the poor entering the lottery: whether they won or lost, their dramatically changed fortunes would lead them to heartbreak, suicide, rebellion or murder.¹¹⁶ She also cites one critic of lotteries, barrister Thomas Erskine, in whose words we see both a genuine fear of social disorder and a jealous guarding of power:

“Property is the cause of all power, and its changing hands by sudden strides is the cause of forcible convulsions, while the silent shifting of its channel is only the current of the blood, and the health of the political body. All sudden transitions, therefore, from poverty to riches, or from riches to poverty [...] as they are unnatural motions, and can never happen but by vicious practices inimical to commerce, are to be guarded against by every prudent legislature [...]”¹¹⁷

Writing this in the year of the American victory in the revolutionary war, Erskine clearly belonged to a cohort of the ruling class who felt queasy at the pace of change in their society. In the last line, he espouses what is known as the “country ideology” by juxtaposing “virtuous

¹¹⁴ Ibid, 26.

¹¹⁵ Ibid, 26.

¹¹⁶ Ibid, 25.

¹¹⁷ Ibid, 26.

commerce” with “vicious speculation.”¹¹⁸ As Klaus has noted, the societal change associated with commerce was considered a productive force, contributing to the health and wealth of the nation, while the parasitic nature of speculation led to violent spasms, sapping the nation’s strength by rewarding the unscrupulous and ruining the already vulnerable.¹¹⁹ A generation earlier, the proponents of the country ideology had laid the same charges against the use of credit. By the mid to late eighteenth century, when credit’s role in advancing the nation could no longer be denied, it was deemed legitimate as long as it was used in the service of commerce and not speculation. Commerce could thus lend legitimacy to activities formerly assigned to the speculative side of the moral division.¹²⁰ Because no virtuous commercial association could be found to legitimize lotteries, they remained a subject of criticism and heated debate in the House of Commons until well into the nineteenth century.

Hansard’s record of one such debate, in May of 1809, illustrates the common arguments for and against the continuation of state lotteries. A Mr. Whitbread had asked the committee to come to a resolution on the issue of lotteries, to which he objected, stating that, “there was no sin pointed at in the Decalogue which was not encouraged by the lottery. It was a speculation which always began in covetousness, and often led to theft. The instances were not new, where murders, and particularly self murder, had been instigated by losses in the lottery.”¹²¹ A Mr. Windham

¹¹⁸ Klaus, *Forging Capitalism*, 34.

¹¹⁹ *Ibid*, 34.

¹²⁰ *Ibid*, 34.

¹²¹ Report of the Committee of Ways and Means, of the House of Commons. *HC Deb 18 May 1809 vol 14 cc620-5 620*. House of Commons Hansard Archives: UK Parliament.

agreed with ¹²²and extended this paternalist argument, claiming “that a lottery engendered vice no man could deny; the seductions were strong and numerous, and calculated to catch the lower orders of the people, whose minds were as weak as their passions were strong...he thought the evil so great that nothing but the necessities of the state could justify the resorting to lotteries.”

Recognizing that the chief reason his colleagues continued to vote in favour of keeping the lottery was the revenue it brought in, Mr. Whitbread contended that the 300, 000 pounds collected annually from the state lottery was not so much that it could not be made up for in some other way. To this, Sir T. Turton countered that, in fact, it was 700,000 pounds that were garnered from the lottery, and that, in any case “All the evils mentioned were to be traced to insurances.” The Chancellor of the Exchequer agreed that “The circumstances of misery which had been alluded to, arose not out of lotteries, but from insurances” and that “The Little Goes were much more mischievous than the lottery.”¹²³

These Lottery ‘insurances’ referred to in the debate, were side bets popular among the lower orders. Because the lottery was drawn over a period of six weeks, people could wager on a ticket number being drawn on a particular day.¹²⁴ ‘Little Goes’ were similar “schemes for insurance against such contingencies as marriage, birth or the completion of apprenticeship.”¹²⁵ It

<http://www.hansardarchive.parliament.uk/ParliamentaryDebatesVol14>.

¹²² Ibid.

¹²³ Ibid.

¹²⁴ Crump, “The Perils of Play,” 25.

¹²⁵ Eve Rosenhaft, “Review of Gregory Clark’s *Betting on Lives: the Culture of Life Insurance in England, 1695-1775*,” *Reviews in History*, 131 (July, 2000).
<https://reviews.history.ac.uk/review/131>

is unclear just why these activities were referred to as “insurances” and not simply as wagers. But the label insurance, and its identification as the true source of the lottery’s evils, tell us two things. First, even in the early nineteenth century, as insurance was beginning to evolve into a legitimate industry, the taint of its association with gambling had not yet been removed. The crucial matter seemed to be the idea of staking claims on contingent future events. Secondly, by placing blame squarely on these smaller, informal side wagers, the political elites in this debate gave an early indication of just where the line between legitimate and illegitimate gambling would eventually be drawn: speculation on future events was an evil to be suppressed, except when it was in aid of and supervised by the authority of the state.

At this early point, however, the distinctions between the many forms of speculative activities were still muddy and many were still ambivalent about the state’s use of the lottery. In the above-mentioned debate, for example, Mr. Windham noted the difficulty of untangling the lottery from the system of credit in which the state was now entrenched: “If [the lottery] were at an earlier period of the practice, he should certainly vote against it, but as it was now become so interwoven with the system of finance, he saw no particular advantage in opposing it at present.”

¹²⁶ The political elite faced a dilemma. How could their objections to some kinds of speculation be sustained when the new economic order rested on the inherently unstable ground of credit, especially when that ground was not only enticingly fertile, but also, once cultivated, seemingly inextricable? For credit, like, gambling, lotteries, and insurance, involved a particular kind of contract, the completion of which was suspended into the future, and was therefore uncertain and dependent on trust.

¹²⁶ Report of the Committee of Ways and Means.

For Crump, the attempts to define and distinguish different kinds of speculation were a way of confronting a new level of uncertainty in British society. “Writing about gambling made visible a crisis in the basis of faith and epistemology.” It was “a sign for the element of contingency which in the eighteenth century had pervaded faith, commerce, and the social order.”¹²⁷

How Insurance Achieved Legitimacy

As it turned out, by 1826 the lottery would be banned, as it had been before the eighteenth century, while life insurance was well on the way to becoming “the exemplary financial technology of the orderly, pious and prudent.”¹²⁸ What accounted for this change in the perception and popularity of life insurance and other kinds of insurance between the mid eighteenth and mid nineteenth centuries? Scholars have offered a number of plausible responses to this question, but have disagreed on which factor was the primary cause of the change.

On the key dates in the history of insurance in Britain, scholars do seem to agree. The 1760s and 70s were a turning point for life insurance, for it was then that actuarial techniques and demographic information were first systematically applied to life insurance schemes. The first British company to combine “the practice of premium insurance with ... actuarial techniques” was the Equitable Society, established in 1762. Other companies soon followed, for this approach “allowed underwriters to balance premiums realistically against benefits in terms of the expectation of the life of the insured.” There is also agreement that the 1774 Gambling Act was an early but significant victory in the legitimization of life insurance: by banning speculation on lives

¹²⁷ Crump, “The Perils of Play,” 27.

¹²⁸ Mcfall, “The Disinterested Self,” 2; Crump, “The Perils of Play,” 26.

by those without insurable interest, the most offensive practices were removed from life insurance. That which was not banned was implicitly legitimized.

From Faith in Providence to Trust in Abstract Systems

Finally, scholars seem to agree that a shift had occurred by the end of the eighteenth century, whereby the values which had inhibited those earlier in the century from entering into insurance contracts, were overtaken by new values to which insurance appealed. But what were those values? Lorraine Daston argued in 1985 that the relationship between risk and prudence changed over the eighteenth century. Earlier in the eighteenth century life insurance was little different from the riskiest of speculations, and thus, only risk takers involved themselves in such schemes. Only in the second half of the century, when the life insurance companies lessened the risk involved by adopting actuarial techniques and advertised themselves as the prudent path towards middle class thrift and domesticity, did people begin to view insurance as a respectable device for protecting families.¹²⁹

For many years Daston's thesis remained the accepted account of life insurance's transition towards legitimacy. And there is much in her thesis that continues to ring true.¹³⁰ But more recently other scholars have challenged Daston's account, arguing that there was more to the ascendance of insurance than its association with prudence. In his 1999 *Betting on Lives*, Geoffrey Clark argues

¹²⁹ Lorraine Daston, "The Domestication of Risk: Mathematical Probability and Insurance" in *The Probabilistic Revolution*, ed. Lorenz Kruger, Lorraine Daston and Michael Heidelberger (Cambridge, MA, The MIT Press, 1987).

¹³⁰ As I have noted above, insurance and speculation were indeed perceived by many to be indistinguishable for most of the eighteenth century; it was not until after actuarial and other scientific calculations were adopted that life insurance achieved greater popularity and legitimacy. Insurance did begin market itself in alignment with a new cultural focus on prudence although this was more of a factor in the nineteenth century.

that in first half of the eighteenth century, people involved in proto-insurance schemes were just as motivated by prudence as they were by a gambling spirit.¹³¹ Meanwhile, in her work on nineteenth century life insurance, Robin Pearson has shown that speculative practices continued to be a component of life insurance even while the industry promoted itself as the bastion of respectability and prudence. For Rosenhaft, the longer view and new evidence presented by Pearson and Clark demonstrate how complex the evolution of life insurance really was. There was “real fluidity and overlap” in the practices of life insurance societies and companies, and in their appeal to the public.¹³²

The 1760s and 70s were indeed an important moment in the legitimization of insurance, and in the construction of its moral and scientific foundations. However, what Pearson, Clark and Rosenhaft seem to be challenging is the implication that the 1770s were the pivot between a pre-modern insurance that was wildly speculative, and a modern insurance that was rational, scientific and prudential. While these latter traits would certainly be emphasized as the industry promoted itself in the nineteenth century, this does not mean that insurance suddenly shed its uncertain, aleatory or speculative elements. The obvious conjunction of science, rationality and modernity obscures the complex of role of risk within insurance and within modernity itself. And it tells us little about how an activity once tarnished by its association with a world of chance achieved acceptance.

The modernity of risk lies in its future orientation, in the consideration of what shapes may form in the future, and in actions to either shelter or profit from eventualities which remain

¹³¹ Geoffrey Clark, *Betting on Lives: The Culture of Life Insurance in England, 1695-1775* (Manchester, Manchester University Press, 1999).

¹³² Rosenhaft, “Review.”

uncertain in the present. As an instrument for managing risk, insurance is not merely an attempt to secure against unwanted events, nor is it merely an attempt to profit from the uncertainty of an investment. It is both, at the same time. Life and other kinds of insurance involve both the protection of property and family from the possibility of loss, and the pursuit of ventures that are potentially profitable- because they also carry potential risks. The application of scientific knowledge, especially probabilistic knowledge, did not banish this uncertainty.

There is a further element connecting risk, insurance and modernity, which helps to explain the legitimization of insurance: trust. Rosenhaft sees the greater legitimacy of insurance at the end of the eighteenth century as the result of a transition through the century from faith in providence to trust in expert knowledge and abstract systems. She reaches this conclusion after comparing the above-mentioned Lunenburg case of 1720 with a similar case in the 1770s. You will remember that in the earlier case, in the debate occasioned by the failure of the widows' fund, the participants repeatedly referred to the authority of God and his Divine plan.

The Calenberg fund, established in 1767, was a much larger fund, reaching at one point 5,000 members, including many from other countries. It was thought that the greater the pool of participants, the more likely that abnormally long or short lives would cancel each other out, making estimated life expectancies more predictable. It was also established and promoted explicitly as a scientifically supported endeavour. In fact, the founders of the Calenberg fund bragged about the complexity of the scheme, telling potential members that "those who are perhaps unfamiliar with this kind of calculation will not take it amiss if we expect that they place more

confidence in the judgement of men who have more knowledge of the business...than in their own.”¹³³

The size of the fund and its foundation on expert knowledge were important differences which would inform the way in which participants responded when the fund reached a crisis in the 1770s. When the available funds were found to be insufficient and managers declared that the widows would have to accept much smaller pay-outs, the result, as with the Lunenburg case, was an extended dispute between the widows and the subscribers. By the 1770s, however, almost all “reference to God had disappeared. The debates around the crisis of Calenberg and other contemporary funds invested agency and responsibility fully in human actors.”¹³⁴ It was in the interests of subscribers to insist that they had joined the fund with an expectation that their security was guaranteed by the mathematical calculations of experts. The widows, on the other hand, sought to diminish their own liability by “rejecting the claims of statistical probabilism” and by emphasizing the degree to which subscribers to the funds had taken on a risk. Whereas the debate about the earlier crisis centred on trust in god, the debate around the Calenberg crisis centred on trust in the “the worldly institution of the widows’ fund and the men who ran it” as well as the secular authority of expert knowledge of mathematics and data analysis.¹³⁵

Rosenhaft cautions that there was still a great deal of skepticism about the claims of certainty provided by statistical and probabilistic knowledge, and that there was no “practical triumph of mathematical thinking” in this generation. Even among the experts and practitioners

¹³³ Rosenhaft, “How to Tame Chance”, 27

¹³⁴ *Ibid*, 27.

¹³⁵ *Ibid*.

of life insurance schemes, the tendency was to rely on simpler and more familiar means of calculating life tables and premiums. Yet, even when experts did use more refined mathematics, making it ever “more remote ...from common sense or public understanding,” the public still insisted on weighing in on the debate and using the language of risk and probability. The “discursive ground had shifted” so that, while trust in expert knowledge was not complete, it was nevertheless the *focus* of the debate. Thus, Rosenhaft argues that “over three generations of the same social formation and even the same families we can observe how confidence in the possibility of ‘taming chance’ replaced explicitly providential or fatalistic thinking, and how by the same token confidence in expert systems and in particular mathematics, began to displace other forms of trust.”¹³⁶

Trust in expert systems is, of course, one of the key features of modernity identified by Anthony Giddens. In *The Consequences of Modernity*, Giddens argues that this kind of trust develops in modernity as ever more social relations are disembedded from local contexts and restructured “across indefinite spans of time and space.”¹³⁷ This disembedding occurs, he explains, through the mechanisms of “symbolic tokens” and “expert systems.” We have already seen an example of the former in the development of new credit instruments in the English financial revolution. Money is a kind of symbolic token, meaning that it is a kind of “media of interchange which can be ‘passed around’ without regard to the specific characteristics of individuals or groups that handle them at any particular juncture.” Money he says, following Keynes, is a “mode of deferral,” a “means of bracketing time and so of lifting transactions out of particular milieux of

¹³⁶ Ibid, 22

¹³⁷ Giddens, *The Consequences of Modernity*, 21.

exchange.”¹³⁸ With the increasing use of credit instruments from the 1690s on, financial transactions were even further disembodied from local and immediate contexts. As Carruthers notes, the money market became ever more anonymous, creditors and debtors were unknown to each other and the completion of transactions could be indefinitely deferred.¹³⁹

Meanwhile, expert systems are those systems “of technical accomplishment or professional expertise that organise large areas of the material and social environments.”¹⁴⁰ Like “symbolic tokens” such systems provide “‘guarantees’ of expectations across distanced time-space.”¹⁴¹ Giddens explains that, for trust to exist in these systems, it is not necessary that people share in the expert knowledge by which they function. On the contrary, “a lack of full information” is “a prime condition...for trust.”¹⁴²

Conclusion

The Calenberg case, discussed above, is an example of the transition towards trust in expert systems. Widows’ pensions, even with the far simpler scheme of the earlier Lunenburg case, entail both time distancing and trust, because, like credit, they defer the completion of financial transactions into the future. By expanding the size and geographical scope of its membership the Calenberg scheme was also spatially disembodied. Compared with the Lunenburg fund, the Calenberg fund was composed of many who were strangers to one another, most of whom had no

¹³⁸ Ibid, 24

¹³⁹ Carruthers, *The City of Capital*, 127-134.

¹⁴⁰ Giddens, *The Consequences of Modernity*, 27.

¹⁴¹ Ibid, 28.

¹⁴² Ibid, 33.

way of observing the day to day operation of the fund. Disembedded from the local and immediate context, the fund also operated according to scientific methods beyond the grasp of all but a few members. All of these conditions meant that – whatever skepticism people felt about the science behind it- if they wanted to participate in the fund they would have to trust it as a system.

In our own time, participation in insurance and other abstract systems of risk management is less and less of a choice.¹⁴³ In order for insurance to become such a powerful social institution and in order for “the concept of risk (to) replace that of fortuna,” there had first to be “an alteration in the perception of determination and contingency, such that human moral imperatives, natural causes, and chance reign in place of religious cosmologies.”¹⁴⁴ Thus, the rise of risk – and trust – in modernity was not merely the result of more refined calculations of probabilities, but also of the perception that chance could be tamed. The developments I have described in this chapter marked the transition towards that perception. In the next chapter I will describe *how* chance was “tamed,” for the purpose of improving the social realm when in the nineteenth century, the state and the market used “technologies of distance” to know and control the population.

¹⁴³ Interestingly, the more compulsory- or practically entangling- that such abstract systems and expert knowledge have become, the more vocal people have become about their distrust in them. This is a result of the reflexivity of modernity whereby the foundations replacing traditional foundations are subject to doubt.

¹⁴⁴ Giddens, *The Consequences of Modernity*, 34.

Chapter Five

Surveying and Mapping, Enclosing and Improving “The Social” in Nineteenth Century Britain

This chapter relates the nineteenth century use of innovations in probabilistic theory to discover patterns within large populations. The “law of large numbers” allowed statisticians, actuaries and governments to map out the probable risks of the future. With every advance in probability theory, demography and other emerging social sciences, the insurance industry and governments were better able to “make up people”. I demonstrate these developments in the case of Victorian Britain, where the national census and a statistical movement were used as technologies of distance, facilitating the classification of the population into risk categories. This allowed insurers to focus their coverage on the least “risky” and to exclude the most “risky”, while allowing governments to target the riskiest categories for social improvements and moral reform.

In the nineteenth century a number of the socio-economic, epistemic and political processes that had been developing since the seventeenth century now came together in constituting the population as an object of knowledge and governance. Social and economic relations were, for example, gradually disembedding from their local contexts, a process largely impelled by changes related to the transition to a market society: enclosures, the legal and philosophical legitimization of private property, the growth of credit, industrialization and migration to urban centres. Epistemologically, the “integrative” understanding of knowledge predominant in the Renaissance was gradually replaced by a “representational” classical epistemology that we might call *clastic*, or *dispersive*, in that it progressively differentiated the objects of knowledge.¹ Central to this

¹ Together, these processes constitute “modernity”. For an extended discussion of these processes see Michel Foucault, *The Order of Things: An Archeology of the Human Sciences* (New York: New Vintage Books, 1973). Also see Gerard Delanty, *Social Theory in a Changing World:*

epistemological transition were the development of probabilistic thought, risk as an object of calculation, and, in the nineteenth century, the ascendance of objectivity and quantification as the key markers of authority and trustworthiness. These developments appeared to indicate or support a deterministic world view, precipitating an acute concern over the extent of individuals' freedom in this new world.

Alongside these developments were changes in the meaning and function of the state. In England the state shifted from divinely justified absolute rule in the seventeenth century, to a limited notion of self-government after the Glorious Revolution, to the foundations of a liberal democratic government in the eighteenth and nineteenth centuries. Foucault has said that the period associated with classical epistemology is when “knowledge breaks off its old kinship with ‘divinatio’.”² It can likewise be said that this was when the state ceased to be an embodiment of divine authority, and became instead an impersonal authority, a “collective subject charged with establishing order.” This consciously artificial order increasingly functioned through instrumental knowledge.³ By the nineteenth century the state's ordering function and its legitimacy were no

Conceptions of Modernity (New York: John Wiley & Sons, 2013) and Peter Wagner, *A Sociology of Modernity: Liberty and Discipline* (London: Routledge, 2002).

² Foucault, *The Order of Things*, 59-60.

³ David Knights and Theo Vurdubakis, "Calculations of Risk: Towards an Understanding of Insurance as a Moral and Political Technology," *Accounting, Organizations and Society* 18, no. 7-8 (1993) 736. Instrumental knowledge is knowledge produced for the purpose of obtaining a desired end and is conceptually related to Weber's notion of *Zweckrational*, or 'instrumental rationality', which was discussed in the introduction. For more on instrumental rationality see Max Weber, *Economy and Society* (Berkeley: University of California Press, 1978) 24–5. The critique of instrumental reason was a central theme of the Frankfurt School. See, for example, Max Horkheimer, "Means and Ends" in *Eclipse of Reason*, ed. Max Horkheimer (New York: Oxford UP, 1947) and, with Theodore Adorno, *Dialectic of Enlightenment: Philosophical Fragments*, trans. by E. Jephcott, ed. G. Schmid Noerr, (Stanford, CA: Stanford University Press, 2002). For an extended discussion of the history of the concept of instrumental rationality please see Darrow

longer tied to divine order and authority, but to the order that could be discovered through the collection and analysis of information about the governed population.

That order, supporting and propelling material changes in the social, economic and political spheres, was closely tied to the representational epistemology mentioned above. In *Making of a Social Body*, Poovey describes this epistemology as a new kind of abstract thought which began to be imposed upon the phenomenal world, and which generated both a “process of vivification” and the production of an “abstract space” in which all things are measured by numerical calculation.⁴ She argues that it was only with the emergence of mass society toward the end of the nineteenth century that this representational thought came to fully dominate modern epistemology. Like Poovey, I see the nineteenth century as a crucial transitional period, during which new ways of knowing and representing the world were progressively institutionalized through processes of both disaggregation and aggregation. In the former process, an order in which social, economic and political arrangements were once integrated became disaggregated, and split off into “domains” which were at once conceptually and materially discrete (ie, “the Economy” “Society”). People are likewise disaggregated, divided into discrete categories and classifications through the production of statistical knowledge. At the

Schechter, *The Critique of Instrumental Reason from Weber to Habermas* (USA: Bloomsbury Publishing USA, 2010).

⁴ Mary Poovey, *Making of A Social Body: British Cultural Formation, 1830-1864* (Chicago: The University of Chicago Press, 1995), 9. Poovey relates her understanding of this new form of abstract thought to Marx’s notion of “simple” or “general” abstraction, but seeks to make it more specific, breaking it into elements of *instantiation*, *vivification* and *the production of abstract space* and tracing its origin in the British context, to the late eighteenth century transition from Aristotelean deduction to Baconian empiricism. I will more fully discuss the three elements –or dynamics- of this abstraction in a section below, entitled “Binding and Dividing: the Constitution of the Social.”

same time, we see an aggregation of the governed into a unified citizenry and a mass society.⁵

Later in this chapter I will address the aggregation and disaggregation at work in the constitution of the social in the nineteenth century. My focus, however, is on their relation to the logics of risk and insurance, as modern efforts to both contain and transcend the uncertainty of an open future.

The disaggregation of the previously integrated order into the distinct domains of “Society”, “the Economy” and “Politics” can also be understood as a disembedding, or as a process of distancing. Here I want to stress how these developments are a kind of distancing, because the ability to see, know and control objects (land, society, the future) *from a distance* is a crucial characteristic of the modern response to an uncertain and open future, which I have described in preceding chapters. Distance is, furthermore, the condition that gave rise to techniques of abstraction and abstract ways of knowing such as surveying, mapping, enclosing, probability and insurance. If these techniques succeeded in overcoming vast spatial and temporal distances for their own ends (control of territory, expansion of industry, the accumulation of capital and knowledge), they also seem to have allowed for the perpetuation of distance in other ways. That is to say that, with the development of every new “shortcut” for bridging distance, previous relations or integrations dissolve or break apart as formalized ways of relating over a distance become embedded in the cultural practices of the new, large-scale rearrangement of populations. In large urban centres, or in the membership in an insurance pool, for example, one is distanced

⁵ Poovey, *Making of a Social Body*, 4-8

from decision-makers, and indeed from intimate knowledge of fellow urban dwellers or policy-members, and thus must rely on trust in an abstract system.⁶

Industrialization is perhaps the most obvious example of a modern abstract system that realigned social relations into extra-local and dispersive patterns. At the turn of the nineteenth century in Britain, ever more people were uprooted from their communities and moved about the country in search of waged labour. Most found themselves in rapidly growing urban centres where demographic concentration was no replacement for the social relationships that had prevailed in their communities of origin. Once disembedded from their root systems, what could bind these people together? How could coherence and stability be brought to the dispersed relations of this ever more socially and geographically mobile population?

What came to bind people together were new technologies for overcoming distance, technologies that could apprehend and represent this deracinated population in a unifying language, a map of the people that aspired to a fully comprehensive scope. In Britain, as in a number of other countries, the first of these technologies to emerge was the modern census and it was followed shortly after by a second: the establishment of statistical knowledge as a panacea for the investigation of all social and natural phenomena. Drawing upon the work of historians of science, epistemology and the Victorian administrative state, I argue that the census and statistics

⁶ For Anthony Giddens' discussion of abstract systems see *The Consequences of Modernity*, 83-88. Also see Anthony Giddens, "Time-Space Distanciation and the Generation of Power" in *A Contemporary Critique of Historical Materialism: Power, Property and the State*, ed. Anthony Giddens, 90-108 (London: Macmillan, 1981). Also see David Harvey's discussion of space, particularly in relation to post-Fordism, in *The Condition of Postmodernity: An Enquiry into the Origins of Cultural Change* (Cambridge, MA: Blackwell, 1990). Doreen Massey challenges conceptions of 'place' that attach essential identities to territorial boundedness in "A Global Sense of Place" in *Space, Place, and Gender* (Minnesota: University of Minnesota Press, 1994). For an interesting discussion of the function and effects of moral distance see Deen K. Chatterjee, "Moral Distance: Introduction." *The Monist* 86, No. 3 (2003): 327-32.

were new iterations of the gestures of control I explored in the chapters two and three. That is, both were a way of surveying and mapping, enclosing and improving, only their object was no longer limited to the land. Instead, the census and statistics were largely directed at knowing the “population,” predicting its future patterns and intervening to improve those patterns in order to align them with the political and economic objectives of a liberal government. I will also show how the classifications of people produced by statistics and the census aligned the subjectivities of the governed with the objectives of the government, as they came to identify with the categories into which they fell.

Technologies for Overcoming Distance

The Census

The census is not an exclusively modern technique of statecraft- it is indeed one of the oldest actions that states have taken to control populations.⁷ Since it has so often been carried out for the purposes of taxation and conscription it is not surprising that when a comprehensive population census was first proposed in parliament by MP Thomas Potter in 1753, many responded with outrage. One Member of Parliament, William Thornton, proclaimed “this project to be totally subversive of the last remains of English liberty The new Bill will direct the imposition of new taxes, and, indeed, the addition of a very few words will make it the most effectual engine of

⁷ Censuses were carried out in many ancient societies. For some specific discussions of different ancient censuses please see: Kent G. Deng, “Unveiling China's True Population Statistics for the Pre-modern Era with Official Census Data,” *Population Review* 43, no. 2 (2004): 32; Gary Urton, *The State of Strings: Khipu Administration in the Inka Empire* (Austin: University of Texas Press, 2015); David Oliver Relin, “The Census in History,” *Scholastic Update* 122, no. 9 (1990): 11-12.; Wadād al-Qāḍī, “Population Census and Land Surveys under the Umayyads (41–132/661–750),” *Der Islam* 83, no. 2 (2008): 341-416.

rapacity and oppression that was ever used...”⁸ There was also resistance to the idea of a census among the general populous, who, it was feared, might rise up against it.⁹

Although there was just enough support for Potter’s bill to pass in the Commons, it was allowed to lapse before it could be enacted.¹⁰ It wasn’t until the last decade of the eighteenth century that the idea was taken up again. This time it passed, likely because many in government were alarmed by Thomas Malthus’s theory on population and its relation to recent food shortages and economic depression.¹¹ A census would allow the government to either disprove or confirm Malthus’ thesis that the population was rising beyond the limits of the nation’s resources. Greater knowledge of the population could, moreover, provide the government with a better idea of the numbers of men who might be conscripted to serve in the Napoleonic wars.¹² The fact that other

⁸ For the ancient relation- and enduring association – between censuses and taxation or military conscription please see Melissa M. Lee, and Zhang Nan, "Legibility and the Informational Foundations of State Capacity," *The Journal of Politics* 79, no. 1 (2017): 118; Henry C. Binford, "Never Trust the Census Taker, Even When He's Dead," *Urban History* 2 (1975): 22-28.; Peter Skerry, *Counting on the Census? Race, Group Identity, and the Evasion of Politics*, Volume 56, (Washington D.C.: Brookings Institution Press, 2000) 12, 96; Bernard Baffour, Thomas King, and Paolo Valente, "The Modern Census: Evolution, Examples and Evaluation," *International Statistical Review* 81, no. 3 (2013): 409. For the quotation by Thornton, see A. J. Taylor, "Taking of the Census, 1801-1951," *British Medical Journal* 1, no. 4709 (1951): 715.

⁹ Knights and Vurdubakis. "Calculations of Risk," 737.

¹⁰ Colin R. Chapman, *Pre-1841 Censuses & Population Listings in the British Isles* (Baltimore MD.: Genealogical Publishing Company, 1999) 36.

¹¹ John Avery, *Progress, Poverty, and Population: Re-reading Condorcet, Godwin, and Malthus* (Hove, UK: Psychology Press, 1997) 78-79.; Thomas Southcliffe Ashton, *An Economic History of England: The Eighteenth Century* (Abington, UK: Routledge, 2013) 2. ; Baffour, King, and Valente, "The Modern Census," 411. For Malthus’s provocative thesis see Thomas Robert Malthus, *An Essay on the Principle of Population, as it Affects the Future Improvement of Society, with Remarks on the Speculations of Mr. Godwin, M. Condorcet, and Other Writers* (London: Johnson, 1798; New Jersey: The Lawbook Exchange, Ltd., 2007).

¹² Knights and Vurdubakis, "Calculations of Risk," 737; and James Vernon, *Distant Strangers: How Britain Became Modern, Vol. 9* (California: University of California Press, 2014,) 53.

nations had already implemented the new technology of a national census – Sweden, as early as the 1760s, and the United States in 1790 - was a further inducement to undertake such a project.¹³

Thus, when a new proposal was made in 1800, the bill was passed and the Population Act, detailing how the census was to be carried out, was enacted.¹⁴ What made the census of 1801 novel in comparison with previous censuses held within Britain was the scope of its ambition and the systematic and centralized nature of its methods of gathering information. The census was to cover every household in the nation: it was arranged so that it was taken everywhere on the same day, and in such a way that the information passed back to the government through a strict hierarchy, from household to enumerator, enumerator to parish and then district supervisors, until it reached a central office. Following the American Census, it was set up to be repeated every ten years on the same day. This allowed for more meaningful analysis of the numbers, because changes in occupations, family and town sizes, birth and death rates could now be tracked.¹⁵

The census of 1801 was not nearly as detailed as subsequent censuses would become, for it only asked each household for the number and sex of those living within it and did not include individual's names or occupations. With each new census enumeration methods were improved,

¹³ Theodore M. Porter, *The Rise of Statistical Thinking, 1820-1900* (Princeton, NJ.: Princeton University Press, 1986,) 37 and Rebecca Jean Emigh, Dylan Riley, and Patricia Ahmed, *Antecedents of Censuses from Medieval to Nation States: How Societies and States Count* (New York: Springer, 2016), 135.

¹⁴ The Bill was introduced by MP Charles Abbot, who had been influenced by John Rickman's essay of 1796, which made the case for the many advantages of a national survey of the population. After the Bill was enacted Rickman was appointed to oversee the deployment of the Census. See Rebecca Jean Emigh, Dylan Riley, and Patricia Ahmed, *Antecedents of Censuses from Medieval to Nation States: How Societies and States Count* (New York: Springer, 2016), 134-5.

¹⁵ Vernon, *Distant Strangers*, 54; Kathrin Levitan, *a Cultural History of the British Census: Envisioning the Multitude in the Nineteenth Century* (New York: Springer, 2011).

obstacles to accuracy noted in the previous censuses were further minimized and ever more detailed questions added to the census forms.¹⁶ However, as Vernon points out, even with its limitations the first census provided an unprecedented picture of the nation's people: "Never before had the state possessed such detailed knowledge of its population, even if it was confined to household data that were returned in aggregate form. Nonetheless, an official in London could now tell how many men and women lived in a particular village hundreds of miles away without leaving his office."¹⁷ Just as the innovation of the estate map had allowed landowners a comprehensive view of their lands from the comfort of their studies, the national census allowed government officials a view of the governed population in its totality from the seat of power. In both cases the distanced view of the object of knowledge was a necessary precondition for intervention and re-ordering of those objects.

Opposition to the Census

Meanwhile, the passing of the Population Act did little to quell concerns about the census among critics outside of Parliament. Just as the calculative innovations and metrological ethos at work in land surveying had drawn strong criticism in the sixteenth and seventeenth centuries, the counting of people-the objective of the census- met with suspicion and resistance in the eighteenth and nineteenth centuries. You may remember from chapter two that much of the early critique of surveying had centred on the impiety of landowners forgetting that they were mere stewards of

¹⁶ Levitan, *A Cultural History of the British Census*, 19-21.

¹⁷ Vernon, *Distant Strangers*, 54.

God's land, that the land was not theirs to measure and calculate "to the utmost acre."¹⁸ While the religious critique of the census was less prominent than it had been against surveying and enclosures, those who did oppose the census on such grounds often quoted Old Testament scriptures which recounted how God sent a plague following King David's census of Israel. Just as lands were not landlords' to count and measure, so King David's transgression lay in forgetting that the people belonged to God, and were neither his nor any other earthly ruler's to count.¹⁹ This divine punishment must have been in the minds of the people of Newcastle upon Tyne in 1753, when, in response to a Bill brought before the House of Commons proposing an annual census, their MP reported that "they looked upon the proposal as ominous and feared ... an epidemical distemper should follow the numbering."²⁰

¹⁸ For example, the English clergyman and polemicist, Robert Crowley, admonished landlords who used surveyors: "God hath not sette you to surveye hys landes, but to playe the stuards in his householde of this world, and to see that your pore below tenants lacke not theye necessaries." quoted by Andrew McRae, in "To Know One's Own: Estate Surveying and the Representation of the Land in Early Modern England," *The Huntington Library Quarterly* 56, No. 4 (Autumn, 1993) 334.

¹⁹ Levitan, *A Cultural History of the British Census*, 245. See also Ashton, *An Economic History of England*, 2. Two of the most often cited scriptures were Samuel 24 and Chronicles 27. In Samuel 24, after making an extensive census of Israel and Jordan King David recognizes his sin: "And David's heart condemned him after he had numbered the people. So David said to the LORD, 'I have sinned greatly in what I have done; but now, I pray, O LORD, take away the iniquity of Your servant, for I have done very foolishly'." God sends three days of plague on Israel to punish King David. See Verses 1-25, Samuel 24 in *The Revised Standard Bible Containing the Old and New Testaments*, ed. Herbert G. May and Bruce M. Metzger (New York: Oxford UP, 1962), 411-412.

²⁰ Daniel R. Headrick, *When Information Came of Age: Technologies of Knowledge in the Age of Reason and Revolution, 1700-1850* (Oxford: Oxford University Press, 2000), 70. Opposition to the census on the basis of these passages did not end with the passing of the eighteenth century. In 1841, for instance, the newspaper *The Examiner* reported that a Reverend William Black of Blaisdon, Gloucestershire, was fined £5 for refusing to fill in his census form, having written instead that he "considers it highly sinful to number the people. See the 24th chap.

The logic of secular arguments against the census corresponded to religious ones, in that they claimed that to count the people was to overstep the proper bounds of *political* authority. In England, where a discourse of liberty had flourished in the century following the Glorious Revolution, there was a marked sensitivity to forms of governance which might exceed the limits so recently placed on political authority.²¹ That the census might destroy “the last remainders of English liberty” and act as the vehicle for state “rapacity and oppression” was not a view exclusive to M.P. William Thornton. And, while wealthy landowners of the mid-eighteenth century viewed a census as the encroachment of tyranny, they also worried that putting numbers to the people might lead to a levelling of the traditional social hierarchy, in which they enjoyed a high status.²²

Of the 2nd Book of Samuel, in the Holy Bible". *The Examiner* 3 July 1841, quoted at http://www.historyhouse.co.uk/articles/census_objectors.html

²¹ John Miller, *The Glorious Revolution*, (London and New York: Routledge, 2014) ix. Also see. Peter Mandler, *Liberty and Authority in Victorian Britain*, (Oxford: Oxford UP, 2006); Jonathan Scott, “From English to British liberty, 1550–1800,” *European Review of History*: 21 no.1 (2014): 59-72; and Dario Castiglione, “‘That Noble Disquiet’: Meanings of Liberty in the Discourse of the North,” in *Economy, Polity, and Society: British Intellectual History 1750-1950*, ed. Stefan Collini, Richard Whatmore, and Brian Young (Cambridge: Cambridge University Press, 2000) 48-69.

²² Levitan, *A Cultural History of the British Census*, 7, 16. The opposition of landowning aristocrats to any sort of government encroachment on the liberties of English citizens can be traced to the contest between Court Party and the Country Party in the period of the Civil War. The “country platform” held that parliament was no protection from tyranny, legislation could be corrupted and liberty eroded by parliamentary majority. For insight into this rich intellectual history please see Kenneth Olwig, *Landscape, Nature, and the Body Politic: from Britain's Renaissance to America's New World* (Wisconsin: University of Wisconsin Press, 2002). Also see Mark Goldie, “The English System of Liberty” in *The Cambridge History of Eighteenth-century Political Thought Vol. 1*, ed. Goldie, Mark, and Robert Wokler, (Cambridge: Cambridge University Press, 2006); and Perez Zagorin, *Court, Country, and Culture: Essays on Early Modern British History in Honor of Perez Zagorin* (Woodbridge, UK: Boydell & Brewer, 1992).

In ways that they could not have imagined, the governmental encroachment feared by eighteenth century critics of the census was realized in the century that followed. The census would usher in an era of unprecedented governmental surveillance and control over the lives of subjects. Moreover, the census data would be used in such a way that the population was both categorized and homogenized, so that, as some critics had feared, much of what remained of the traditional social hierarchy and organization would indeed be undone.

Resistance and Recognition: Public Responses to the Census

While the census had become an indispensable technology of governance by the mid-nineteenth century, its implementation was not wholly one-sided. The state may have imposed a regular census upon the population, but, as Levitan argues, the public did have at least some role in shaping it. In response to particular concerns voiced by the public, the extent and nature of questions on the census forms were continually revised. Census architects were made aware of both the practical obstacles of carrying out the census and the limits of popular consent through feedback from enumerators, but also through the press. The press was the key means by which the census was negotiated between the public and the government. It voiced the public's perceptions of the census at the same time as it persuaded the public of its duty to participate in the census as a national project. Ultimately, the state's power to unilaterally implement the census was restrained by the requirement that each new census had to be approved in an Act of Parliament.²³ Until this stricture was removed in 1920, census managers were always aware that public concerns raised in

²³ Levitan, *A Cultural History of the British Census*, 46, and Edward Higgs, *Making Sense of the Census Revisited: Census Records for England and Wales, 1801-1901* (London: Institute of Historical Research, 2005).

parliamentary debates might prevent such an act from passing.²⁴ Thus there was an ongoing need to consider the population's sensitivities in the shaping and implementation of the census. At the same time, we should not overstate the public's power in shaping classificatory schemes of the census. That is, the press, in mediating between the state and the public, can also be said to function as an "ideological state apparatus," to use Althusser's term. And people largely came to recognize themselves in the census categories publicized and debated in the press. I will discuss the curious phenomenon of this recognition, what Althusser called "interpellation," at a later point in this chapter.²⁵

While the national census in Britain was partially shaped and limited by its exposure to public scrutiny, this was not at all the case for censuses carried out on subordinated populations, such as inmates of asylums or workhouses, or colonial subjects. Wherever it was unnecessary to solicit the cooperation of those being counted, censuses could be made as extensive and detailed as the government wished.²⁶ In Ireland, for example, census forms asked far more questions than those in Britain, and sought information on property and wages, which in Britain "would have been considered intrusive and utterly outside government jurisdiction." In fact, the census in Ireland was often treated as a chance to "experiment with possibilities that would not have been considered acceptable within Britain."²⁷

²⁴ A. J. Taylor "Taking of the Census," 715.

²⁵ Louis Althusser, "Ideology and Ideological State Apparatuses (Notes towards an Investigation)," in *The Anthropology of the State: A Reader*, ed. Aradhana Sharma, Akhil Gupta, (Oxford: Blackwell, 2006), 92; 103-4.

²⁶ Levitan, *A Cultural History of the British Census*, 46, 150.

²⁷ *Ibid*, 150-153.

In colonies like India, where white settlers were a minority, information was not gathered directly from the population but through the cooperation of local leaders. This was both because British personnel were scarce and because it was assumed that the population would oppose the census. Indeed, a full census of India was not actually attempted until 1881, not only because of its immense size and diversity, but also because colonial rulers feared the unrest a census might stoke.²⁸ Once the census was taken however, it had an enduring impact on the identities of those counted and categorized.²⁹ This was also the case in Britain, where, as Hacking points out, the census categories may have played a much larger role in shaping class consciousness than Marx ever did.³⁰ But, as Kertzer and Arel, note, there was at least some negotiation in the domestic census between the officials constructing categories and particular social groups.³¹ This diverging approach to domestic and colonial censuses was common to all the European colonial powers, which, especially in the second half of the nineteenth century, sought to foster a sense of nationhood at home. According to Arjun Appadurai, too much stress on cultural categories in the

²⁸ Ibid, 149, 156 and Vernon, *Distant Strangers*, 55.

²⁹ Levitan, *A Cultural History of the British Census*, 149. For more detailed accounts of the relationship between the census and the identity formation among colonized subjects see David I Kertzer and Dominique Arel, eds., *Census and Identity: The Politics of Race, Ethnicity, and Language in National Censuses* (Cambridge: Cambridge UP, 2002); Bernard S. Cohn, "The Census, Social Structure and Objectification in South Asia" in *An Anthropologist among the Historians and Other Essays*, ed. Bernard S. Cohn (New York: Oxford UP, 1984), 224; Arjun Appadurai, "Numbers in the Colonial Imagination," in *Orientalism and the Postcolonial Predicament: Perspectives on South Asia*, ed. C.A. Breckenridge and P. van der Veer (Philadelphia: University of Pennsylvania Press, 1993), 314; Nicholas Dirks, *Castes of Mind, Colonialism and the Making of Modern India* (Princeton, NJ: Princeton UP, 2001); and Timothy Mitchell, *The Rule of Experts: Egypt, Technopolitics and Modernity* (Berkeley, University of California Press, 2000).

³⁰ Hacking, *The Taming of Chance* (Cambridge: Cambridge University Press, 1990), 3.

³¹ Kertzer and Arel, *Census and Identity*, 10.

domestic census was thought to be “incompatible” with these “imagined ‘nation states’” whereas they “had no such qualms when faced with the daunting task of counting their colonial subjects.”

32

In Britain, the press played a major role in normalizing the census, largely by encouraging the view that it was a national project in which every citizen was engaged. Yet suspicion and resentment of the census had not disappeared. According to Levitan, voices opposed to the census in political and intellectual circles had diminished by the 1850s and 60s, while in the press it was implied that any remaining recalcitrance came from the poorer segments of the population. It is difficult to know whether the poor really were more resistant to the census or whether their more precarious and marginal living conditions simply made it more difficult to gather data on them, or to fit their experiences into the census categories. They may also have been deemed anti-census because their very marginality seemed inimical to the spirit of progress that the census was thought to embody. The census not only measured the nation’s progress, but as a technology capable of accumulating data on a remarkable scale, the census was itself evidence of that progress. By displaying ever more complete knowledge of the governed, the census had become a mark of England’s scientific advancement and civilization. Those still resistant to the census were therefore portrayed in the press as superstitious, backwards, and eminently uncivilized.³³

Paradoxically, it was this “backward” or marginal segment of the population—those who could not easily be counted—upon whom the technology of the census would be most consistently trained in the nineteenth century. In particular it was the obdurate poor who were viewed as the

³² Appadurai, “Numbers in the Colonial Imagination,” 317-18.

³³ Levitan, *A Cultural History of the British Census*, 22

greatest threat to the progress of the nation and who were thus made the primary targets for social reform.³⁴ The idea that the poor were surplus to the natural limits of the population- were the flaw in the formula for an ordered society - had gained purchase ever since the agricultural crisis of the late eighteenth century. When the Speenhamland system of “outdoor relief” failed to stem the rising tide of pauperism in the 1790s, Thomas Malthus diagnosed the problem in his utilitarian theory on the “population principle,” a theory that relied extensively on quantitative data. Expressing a vision of the natural laws governing wealth in the austere language of numbers, the essay on population was rather ill received in a period when numerical treatment of human affairs was considered unsympathetic and amoral.³⁵

But this cultural discomfort with the counting of people had begun to change in the reforming fervour of the 1830s. In this decade alone, a number of statistical societies were established, The General Registry Office was created to oversee and amalgamate census data, and the problem of the surplus poor was submitted to a new calculus under the aegis of the Poor Law Board. The creation of each of these agencies correlated with larger changes to epistemology, government and social policy taking place in the nineteenth century. While not without its critics, statistics began to accrue legitimacy as an “objective” form of knowledge, a transparent lens

³⁴ Ibid, 44, Hacking, *The Taming of Chance*, 120.

³⁵ In Malthus’s *Essay on the Principle of Population*, we can see an amalgam of several contemporary schools of thought. In addition to utilitarianism and the “science of wealth” (political economy) it also contained a residual providentialism, which emphasized the divine design governing human affairs. Providentialism had been a principle theme of much eighteenth century moral philosophy, but according to Poovey, when Malthus revised his 1798 edition he limited his providential message and stressed the quantitative nature of his data. For Poovey, this was a pivotal moment in the history of the modern “fact”, when numerical representation was severed from previous religious connotations and began to be viewed as amoral. See Poovey, *A History of the Modern Fact*, 179-193.

through which the state of the nation and its population could be surveyed from the distanced, impartial perspective of quantification.³⁶ Meanwhile, the General Registry Office further centralized and rationalized the operation of the state's key surveying instrument, the census, a movement indicative of the turn to liberal governmentality. Finally, the social intervention of the New Poor Law would come to be seen as archetypical of that governmentality, and is illustrative, I will argue in a later section, of a new iteration of the modern logic of enclosure and the drive to improve.

³⁶ For the relation between the statistical movement in the 1830s and the rising authority of “objective” knowledge please see, Porter, *The Rise of Statistical Thinking*; Michael J. Cullen, "The Statistical Movement in Early Victorian England," (Sussex: The Harvester Press, 1975); Stephen M. Stigler, *The History of Statistics: The Measurement of Uncertainty Before 1900* (Cambridge, MA: Harvard University Press, 1986); Alain Desrosières, *The Politics of Large Numbers: A History of Statistical Reasoning* (Cambridge, MA: Harvard University Press, 2002); Gerd Gigerenzer, *The Empire of Chance: How Probability Changed Science and Everyday life*. Vol. 12. (Cambridge: Cambridge University Press, 1990). For more recent work on the subject, see Tom Crook and Glen O'Hara, eds. *Statistics and the Public Sphere: Numbers and the People in Modern Britain, c. 1800-2000* Vol. 6. (London: Routledge, 2012). For the epistemological turn towards objectivity and quantification please see Theodore M. Porter, *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life* (Princeton, N.J: Princeton University Press, 1996); Lorraine Daston, "Objectivity and the Escape from Perspective" *Social Studies of Science* 22, no. 4 (1992): 597; Peter Dear, "From Truth to Disinterestedness in the Seventeenth Century," *Social Studies of Science* 22, no. 4 (1992): 619-631, and Mary Poovey, *A History of the Modern Fact: Problems of Knowledge in the Sciences of Wealth and Society* (Chicago: University of Chicago Press, 1998); Lorenz Kruger, Lorraine J. Daston, and Michael Heidelberger *The Probabilistic Revolution, Vol. 1: Ideas in History; Vol. 2: Ideas in the Sciences* (Cambridge MA: The MIT Press, 1987). These are all seminal works on the subject. For more recent works on the topic of objectivity see R.C. Bannister, 2014. *Sociology and Scientism: The American Quest for Objectivity, 1880-1940* (Chapel Hill, NC: UNC Press Books, 2014); Robert C. Pinto, Robert and Laura E. Pinto. "The Emotional Life of Reason: Exploring Conceptions of Objectivity," (2016) .OSSA Conference Archive. 85. <https://scholar.uwindsor.ca/ossaarchive/OSSA11/papersandcommentaries>; and Mansoor Niaz, "Conclusion: Understanding the Elusive Nature of Objectivity," In *Evolving Nature of Objectivity in the History of Science and its Implications for Science Education*, (New York: Springer, 2018).

Statistics as Surveying Instrument

It is the surveying function of statistics to which I turn now, for, like any new property development, the restructuring and improvement of the population required first a survey of the site upon which it would be built. That is to say, the establishment in the 1830s of statistical societies, the General Registry Office and the Poor Law Board, signalled the consolidation and extension of technologies for mapping the terrain of the existing population with a view to its future development. We have already briefly discussed the census as such a technology, but in fact, the census was only one – crucial- method in the new form of knowledge known as statistics. The rise of statistical activity across Europe in the first half of the nineteenth century intersected with several key developments in the risk management mode of modernity. Not only did statistics help to inaugurate an “objective” standard of knowledge, and a science of society that was instrumental to modern governance (and constructive of the identities of the governed) but it also allowed both insurers and states to find large scale patterns within populations, and in turn, to apply probabilistic reasoning to the crafting of both insurantal and governmental policies.

That statistics are a form of knowledge instrumental to modern statecraft can be seen in the etymology of the term itself. Ultimately traceable to the seventeenth century Italian word *statista* for “statesman”, the term statistics itself first arose in the context of German *polizeiwissenschaft* (political science) in the eighteenth century.³⁷ Usually attributed to Gottfried Achenwald in 1749, the first use of the noun “statistik” signified the collection of observable data related to the state.³⁸ As an effort to measure the power of the state or to assess the population and other resources that

³⁷ Stuart Woolf, "Statistics and the Modern State," *Comparative Studies in Society and History* 31, no. 3 (1989): 590.

³⁸ Poovey, *A History of the Modern Fact*, 308.

could be called upon to maintain or increase that power, the German statistik was comparable to the late seventeenth century project that the English called Political Arithmetic. Yet, as a practice that developed closely with theories of probability, some scholars argue that the true origin of statistical thought was the publication of Graunt's mortality table in 1660, and the use of this and other mortality tables in drawing up insurance contracts in late seventeenth century England.³⁹

As Hacking has noted, every nation has its own unique history of statistics. One pattern in these histories, noted by both Hacking and Woolf, is a difference in the nature of statistics in more individualistic or liberal nations such as England or France compared with more collectivist nations such as Germany or Sweden. Where the former tended to stress the descriptive purpose of statistical efforts, and those efforts tended to be the work of amateurs, in the latter nations, statistics were more prescriptive and were carried out by officials of the state.⁴⁰ In England for example, in spite of the early work of political arithmeticians, the term 'statistics' was not used in English until John Sinclair published his Statistical account of Scotland in 1790, and even then, Sinclair stressed that his "statistics" had more to do with utilitarian calculations of the "quantum of happiness" than the exertion of state power associated with the German word "statistic". While Sinclair's work was groundbreaking in its scope, it was, according to Woolf, "essentially topographical, the sort of project undertaken by surveyors." That is, it was not a work intended to inform public policy.⁴¹

³⁹ Zohreh Bayatrizi, "From Fate to Risk: The Quantification of Mortality in Early Modern Statistics," *Theory, Culture & Society* 25, no. 1 (2008): 123.

⁴⁰ Hacking, *The Taming of Chance*, 36-38; Woolf, "Statistics and the Modern State," 590-91.

⁴¹ Woolf, "Statistics and the Modern State," 590.

Up until the 1830s the statistical information amassed in England came largely from disparate and limited studies published by amateurs. Certainly, such data was useful to the nascent profession of actuarialism, as life assurance companies had become increasingly aware of the need for the most accurate mortality data possible.⁴² Additionally, the collection and publication of statistics by amateurs with diverse intellectual interests fed into a growing appetite for information on social phenomena. From the late eighteenth century, the moral sciences had begun to adopt and apply to the social realm the scientific methods used to observe and categorize natural phenomena and to discover the systems and laws of the physical world.⁴³

Yet, while this early statistical work in England contributed to both actuarial knowledge and to the “science of man” burgeoning throughout Europe, it was curiously disassociated from some of the intellectual fields in which it now plays an integral part.⁴⁴ It was not, for example, informed by any of the mathematical and probabilistic innovations cropping up on the continent at that time. Nor was it allied with the new science of economics. In fact, many political economists anathematized statistical knowledge on the basis that it was devoid of any theoretical content.⁴⁵

⁴² Hacking, *The Taming of Chance*, 48-49.

⁴³ Woolf, “Statistics and the Modern State,” 594; Theodore Porter, “The Rise of Statistics” in *Encyclopedia Britannica*, <https://www.britannica.com/topic/probability/The-rise-of-statistics>. See also Desrosières, *The Politics of Large Numbers*, 173.

⁴⁴ Porter, “The Rise of Statistics.”

⁴⁵ For a fascinating analysis of the 1830’s debate about whether statistics could be considered a legitimate form of knowledge please see Mary Poovey “Figures of Arithmetic, Figures of Speech: The Discourse of Statistics in the 1830s,” *Critical Inquiry*, 19 (Winter, 1993): 256. For other discussions of the anti-statistical bias see, Lorraine Daston, *Classical Probability in the Enlightenment* (Princeton, NJ: Princeton University Press, 1988); and Lawrence Goldman, “The Origins of British Social Science: Political Economy, Natural Science and *Statistics*, 1830-1835,” *Historical Journal*, 26, no.3 (1983): 586.

This particular anti-statistical attitude reflected an epistemological conflict that became acute in early nineteenth century England, one that explains why it wasn't until the 1830s that statistics approached legitimization as a science or was fully embraced as a useful tool for public policy.

Poovey has explored the tensions and ambiguities surrounding the epistemological claims of statistics in the early nineteenth century, and situates them within the larger context of Western philosophy's "long campaign to sever the connection between description and interpretation."⁴⁶ Among the first to mount this campaign was Francis Bacon, who insisted that all knowledge must first be grounded in the observation of particular facts. Rather than jumping to general principles, a continuing legacy of Aristotle, Bacon wished to "insulate" each observation of a natural phenomenon from all theoretical prejudices or ambitions to systematize knowledge. As Poovey explains, this ambition was achieved rhetorically rather than in practice, for such discrete particulars were still conceived of as a units of a larger system of knowledge.⁴⁷

Yet the idea that the most valid form of knowledge derived from descriptions of facts free of interest or interpretation was given further momentum in the "scientific revolution" of the mid seventeenth century. Boyle and other members of the Royal Society followed Bacon by choosing to ground their scientific findings in the evidence of the senses as demonstrated in controlled experiments. By the end of that century the knowledge project of accumulating "disinterested" facts was further validated by William Petty's "political arithmetic" which sought to reveal the state of the nation in "number, weight and measure."⁴⁸

⁴⁶ Poovey, *A History of the Modern Fact*, xxv.

⁴⁷ *Ibid*, 8-9.

⁴⁸ *Ibid*, 93-4; 100; 132-133.

But the ascendance of descriptive knowledge did not continue unrivalled in British thought, for the eighteenth century was dominated by the conjectural histories of the Scottish moral philosophers. Now, the political arithmetic model of “government by information” faced competition from a new model: “government by sociality.”⁴⁹ It is not that Hume, Smith, Ferguson, and others abstained from observing particulars or using numerical data, but that their theories of sociality, liberal government and divine providence tended towards the production of general, and even universal knowledge and rested upon abstractions such as “society” or “the market.”⁵⁰ While descriptive and interpretive knowledge co-existed in much of the work of moral philosophers, a sharper division was made between the two in the “moral sciences” of the late eighteenth century. An outgrowth of moral philosophy and a precursor to political economy, the moral sciences explicitly linked the laws governing wealth and society with providential design. It was in this context that Malthus’ treatment of the problem of poverty appeared to critics as methodologically suspect, for it seemed to use mathematical tools to evaluate what many viewed as a spiritual and ethical subject. Ironically, while the supposed amorality of Malthus’ approach led Carlyle to dismiss political economy as “the dismal science,” by the 1830s the (supposed) absence of moral

⁴⁹ Ibid, xxi. For recent treatments of this school of historical thought please see Alexander Broadie, *The Scottish Enlightenment: An Anthology*, (Edinburgh: Canongate, 2010); Robin Douglass, “Morality and Sociability in Commercial Society: Smith, Rousseau and Mandeville,” *The Review of Politics* 79, no. 4 (Fall, 2017): 597; Juan Samuel Santos Castro, “Hume and Conjectural History,” *Journal of Scottish Philosophy* 15, no. 2 (2017): 157; Franck Palmeri, *State of Nature, Stages of Society: Enlightenment, Conjectural History and Modern Social Discourse* (New York: Columbia University Press, 2016).

⁵⁰ Poovey, *A History of the Modern Fact*, 225-229. Poovey suggests that this focus on abstractions was at least in part a consequence of the scarcity of numerical data at the time, and notes that Smith, for one, had urged an improvement in such knowledge in order to better demonstrate his theories, 239-240.

intent in numerical representations of wealth and society had come to be seen as a virtue- at least by some.

Between the 1820s and 1840s the number of statistical works published across Europe increased exponentially, so much so that Ian Hacking has referred to this output as “an avalanche of numbers.”⁵¹ In England, this “avalanche” intensified the debate about descriptive versus interpretative knowledge. The dispute often took the form of an opposition between what contemporary journalist, William Cooke Taylor, called “the figures of arithmetic” and “the figures of speech.” Which form of knowledge could claim greater validity? The persuasive power of morally charged “pathetic tales” used in rhetorical argument or the “dull, dry parade of stupid numbers” used in statistical reports? For Taylor, the “stupidity” of numbers was proof of their superiority as conveyors of truth, for they did not speak for anything beyond themselves, or deceive and manipulate through the narrative devices of rhetoric.⁵² On the other hand, even Taylor - a proponent of statistics- knew that there were holes in this argument. For the presentation of tables and columns of numbers could also be used to deceive. In fact, when rhetoric was the accepted mode of knowledge production in the seventeenth century, numerical representations such as those produced by Petty were dismissed as “conjurer’s tricks”. After all, the apparent simplicity of each statistical fact, unaccompanied by an explanatory framework, could be interpreted in any way and used to any end. As Taylor admitted, when “fierce controversies rage. ...every disputant is prepared to support his views with a formidable array of figures”.⁵³

⁵¹ Hacking, *The Taming of Chance*, 5

⁵² Taylor, in Poovey, “Figures of Arithmetic,” 260-262.

⁵³ *Ibid*, 262.

The 1830s Statistical Movement: 'Objective' Knowledge, Moral Reform

The controversies surrounding statistical knowledge at this time reflected a self-conscious concern about the appropriate methodologies for knowledge production. It was thus in a climate of both uncertainty and reflexivity that statistics first attained a place in scientific and administrative institutions. Although the British Society for the advancement of Science was one of the first British organizations to establish a statistical section, it did so, in 1833, with strong reservations.⁵⁴ Adam Sedgwick, the founder of the BAAS, was among those who regarded statistics as less than scientific. Unlike the model of science, astronomy, statistics lacked a theoretical foundation and was insufficiently divorced from the ambitions and controversies of the political world. It was only through the influence of mathematician and enthusiast of industry Charles Babbage that Sedgwick relented. At Cambridge, Babbage had organized an impromptu gathering of prestigious thinkers interested in statistics such as the celebrated Belgian astronomer and inventor of “social physics,” Adolphe Quetelet, and professor of political economy Richard Jones.⁵⁵

Cullen suggests that it was the prestige of these men that helped Sedgwick to overcome his reservations about statistics' proximity to politics. But those reservations were, in fact, well founded, for, on the whole, the early members of the BAAS statistical Section F were active in liberal and Whig politics and were particularly interested in the issues of social reform that predominated in the 1830s. Nevertheless, Sedgwick tried to insulate the BAAS from political controversy by insisting that the new section limit itself to numerical descriptions, arguing that “if we transgress our proper boundaries...and open a door of communication to the dreary world of

⁵⁴ The Board of Trade was the first national institution in England to establish a statistical office, in 1832.

⁵⁵ Cullen, *The Statistical Movement in Early Victorian Britain*, 77-82.

politics, in that instant, will the foul Daemon of discord find its way into our Eden of philosophy.”

⁵⁶ When chairing the second meeting of the statistical section, Jones likewise urged members to avoid “the premature speculation which is too apt to mingle itself with such researches.” To this end they should “limit as far as possible their reception of such matter to facts capable of being expressed by numbers”⁵⁷ Thus, it was thought that adherence to strictly quantitative and abstract presentations of data would insulate the statistical section – and BAAS’s scientific reputation – from political interestedness or dispute.

It wasn’t long before a second major statistical body was organized in London, by many of the same people from the BAAS statistical section. Wanting to find a more permanent organization dedicated solely to statistical research, Jones, Quetelet, Malthus, Babbage and the political economist and New Poor Law architect Nassau Senior, established the Statistical Society of London in 1834.⁵⁸ The society’s mission was to collect facts- “which are calculated to illustrate the condition and prospects of society”⁵⁹ Again, in spite of the reformist ambitions of many of the members, they affirmed their commitment to objectivity. The Society’s prospectus declared that its “first and most essential rule of its conduct” was “to exclude all *opinions*.” This tenet was repeated symbolically in the emblem chosen for the society: a wheat sheaf accompanied by the

⁵⁶ Sedgewick quoted in *ibid*, 79.

⁵⁷ Jones, quoted in *ibid*, 82.

⁵⁸ Headrick, *When Information Came of Age*, 84.

⁵⁹ Cullen, *The Statistical Movement in Early Victorian Britain*, 86.

words *aliis Extenderum*- “to be threshed out by others”, meaning that they would only gather the data; it would be left to others to interpret it.⁶⁰

It soon became obvious –at least to those skeptical about statistical knowledge - that honouring the pledge of pure and disinterested description was a more difficult proposition than making a declaration and an emblem. Some critics charged that even if the Statistical Society of London could separate numerical facts from their political intentions, it made little sense to do so. In 1838, one such critic, John Robertson, of the radical *London and Westminster Review*, argued that the SSL’s attempt to separate facts from opinion or interpretation was not methodologically possible, since “the exclusion of opinion is the exclusion of the only guides which can conduct ...researches to any useful end” for “facts are valuable only in relation to what they prove.” Isolated from any proposed idea or hypothesis, facts can be interpreted to mean anything and everything - and therefore nothing at all.⁶¹

As it turned out, the facts presented in the works of the SSL and the BAAS statistical section were accompanied by plenty of interpretative discussion. And notwithstanding their emphatic declarations of objectivity, when one reads the published works of these organizations one cannot fail to discover the social and political interests of their authors. One can see this, for example, in the published proceedings of the SSL, in its first volume, when the Reverend J.E. Brombey, honorable secretary, read the Annual Report of the Council for the newly founded Bristol chapter of the Society. He stated that the purpose of the Bristol statistical society was to collect a “series of facts connected with [Bristol’s] commerce and general prosperity, capable,

⁶⁰ Ibid, and Poovey, *History of the Modern Fact*, 311

⁶¹ Poovey, “Figures of Arithmetic,” 261-2.

when constantly observed and registered, of shewing, by the simple inspection of tables, the fluctuating vicissitudes of its internal condition and of its trade” of “use to the citizen and merchant, and to the legislator”.⁶²

But the Society had a second objective “of much greater importance,” which was “to make such a thorough investigation into the state of the poorer classes of society as to ascertain what means of instruction and improvement they either have or can command for themselves ... and how far they enjoy those comforts and conveniences which every man must enjoy before he is entitled to the epithet of civilized.”⁶³ Brombey makes it clear that this concern for ameliorating the condition of the poor was founded on a fear of uprising and the spectre of revolution exemplified in the French Revolution: because “the formidable power of Sanculottism...is ready, at any season of public weakness and agitation, to sally forth to its work of destruction.” He asks: “May not remedies be applied which shall go far to extinguish its existence which shall therefore place a man's liberties, and his honest title to the social comforts he enjoys, on a much more stable foundation..? In the solution of this question, the facts collected by the Statistical Society will not be without their use.”⁶⁴

Brombey then reflects on the reasons why it is now necessary that “the principle of charity to the poor must undergo considerable modification.” In a simpler state of society, he explains, the poor were cared for by their wealthier counterparts who looked upon such care as their duty. In

⁶² Statistical Society of Bristol, in *Proceedings of Statistical Societies Source: Journal of the Statistical Society of London*, Vol. 1, No. 9 (Jan., 1839), (Published by: Wiley for the Royal Statistical Society), <http://www.jstor.org/stable/233808>, 548.

⁶³ Statistical Society of Bristol, 549.

⁶⁴ *Ibid*, 549.

the more closely knit relations of the past, not only did the poor and the wealthy live in closer proximity, but the needs of the community were also “produced and fabricated within a comparatively limited district, (say a patriarchal household,)” so that “the ordinary visitations of Providence are easily known, and as easily mitigated.” For Brombey, the problem of the poor is made more difficult in contemporary urban and industrial society, where social and economic relations are ever more widely dispersed. In the “artificial and complicated state” wherein “a nation manufactures for half the world,” there is an “enormous distance between the labourer and his virtual or subdivided employer.” This distance precludes the “interchange of courtesy as well as of information” that exists in simpler, smaller communities, impeding the “intellectual and moral education” that –apparently- would improve the lot of the poor.⁶⁵ Leaving aside his widely shared assumption that the lot of the poor would improve under the moral tutelage of the middle classes, Brombey’s speech shows, I think, how well he and his fellow members in the statistical society understood their role in addressing the problem of distance in governing modern societies—particularly the difficulty of knowing the risks faced by certain subclasses of the population and of finding ways to manage those risks to prevent general social disorder.

Having said all this, however, Brombey concluded his speech with an assertion that these issues were “not the province of the Statistical society” whose “only object is to ascertain, as nearly as possible, what the actual exigencies are, and by an accurate exhibition of them, to rouse the community and eventually the legislature to make adequate measures to meet them.”⁶⁶ The stress on the objective nature of their work was vital, for as one member present at that meeting noted,

⁶⁵ Ibid, 549-550.

⁶⁶ Ibid.

the Society was in need of funding, ideally from the wealthy citizens of Bristol, but “he was afraid that it was thought by some that the Society was a political one” and –reading between the lines- the wealthiest were not necessarily of the same reforming politics as those in the statistical society.

67

Members of and contributors to statistical societies –‘Statists’ they called themselves- seem to have understood their role in modern industrial Britain as bridging the knowledge gap created by social distancing by taking accurate surveys of the state of society, and relaying them to those governing so that they could avoid “legislating in the dark.”⁶⁸ But today’s reader is particularly struck by the moralistic character of some of their surveys- especially when the poor were the object of their analysis. There was, in fact, a category of statistical research devoted to “moral statistics”. In one report on “*Moral Statistics of Parishes in Westminster*” the “habits of prayer amongst children” in St. James, St. George and St. Anne Soho were presented in tabular form. Children in these parishes were asked to recite their nightly prayers. Those who could recite customary bedtime prayers fluently were grouped into class 1; those who recited prayers which were likely learned at school or church and not from their parents were in class 2; those who claimed to say their prayers but could not recite them were class 3 and those who admitted that they never said their prayers were grouped in class 4.⁶⁹

⁶⁷ Ibid, 551.

⁶⁸ Poovey, *A History of the Modern Fact*, 316.

⁶⁹ Rev. Wyatt Edgell, “Moral Statistics of the Parishes of St. James, St. George, and St. Anne Soho, in the City of Westminster. Supplementary to the Third Report of the Education Committee of the Statistical Society of London,” *Journal of the Statistical Society of London* 1, no. 8 (Dec., 1838): <http://www.jstor.org/stable/2338094>, 482-3.

The report also presents, under the heading “reading and literature,” the results of a survey of books circulated by small libraries in the same parishes. This table shows the “proportions of different characters of the books found in 10 libraries which have been thoroughly analyzed and counted.” The subjective judgements in this table are easily apparent: some of the books listed are described as “Works of a good character, Dr. Johnson, Goldsmith, &c”, others as “novels of the lowest character, being chiefly imitations of Fashionable Novels, containing no good, although probably nothing decidedly bad” and, in the last column, “books decidedly bad.”⁷⁰

Dickens’ Critique of the Statistical Societies

So little were the statistical organizations able to inhibit moral and subjective elements from pervading their works that they were an easy subject of mockery. In 1838, Charles Dickens, who would become a life-long critic of both the statistical and moralistic approaches of social reformists, published a satirical essay lambasting the arrogance and didacticism of scientific and reforming associations so prevalent in the period. If its target was not the SSL or section F of the BAAS, its blows nevertheless landed on a body of work very like theirs. The “Full Report of the first meeting of the Mudfrog Association for the Advancement of Everything” – (its name perhaps mocking the far-reaching ambitions of the British Society for Advancement of Sciences) - begins with a breathless narrator relating the eagerness with which the town of Mudfrog awaits the meeting of the Mudfrog Association.⁷¹

Dickens skewers the self-importance of scientists and statisticians who seem to dissect the objects of their study with icy single-mindedness. A few days before the meeting the narrator

⁷⁰ Edgell, “Moral Statistics,” 485.

⁷¹ Charles Dickens, (“Boz”) “The Mudfrog Association for the Advancement of Everything,” *Bentley’s Miscellany*; (Jan 1, 1837); 2, Periodicals Archive Online, 397.

describes an event which occurred soon after the arrival of Professors Snore, Doze and Wheeze. A small dog was said to have been taken from the street and brought up to the hotel room of those eminent professors. Before they were able to dismember it, the dog had gotten loose and hidden beneath some furniture. The narrator writes. “you cannot imagine the feverish state of irritation we are in, lest the interest of science should be sacrificed to the prejudices of a brute creature, who is not endowed with sufficient sense to foresee the incalculable benefits which the whole humane race may derive from so very slight a concession on his part.”⁷²

As the meeting begins, it is announced that the council has corresponded with “no less than 3,571 persons on no fewer than 7,243 topics”⁷³ The meeting is broken into 4 sections: zoology and biology, anatomy and medicine, statistics, and mechanical sciences. In the narrator’s account of the proceeding of the zoology and botany section, we see what Dickens thinks about the condescension with which scientists and statisticians investigate the state of the poor. Professor Snore begins by calling upon,

“one of the secretaries to read a communication entitled “some remarks on the Industrious fleas, with considerations on the importance of establishing infant schools among that numerous class of society; of directing their industry to useful and practical ends; and of applying the surplus fruits thereof, towards providing for them a comfortable and respectable maintenance in their old age”⁷⁴

And when the celebrated statistical member Mr. Slug presents his report on the “state of infant education among the middle classes of London” we are reminded of the subjective nature

⁷² Dickens, “The Mudfrog Association,” 400.

⁷³ Ibid, 403

⁷⁴ Ibid, 404.

of the above mentioned report on the character of the books circulated by libraries in the parishes of Westminster:

Jack & the Giant Killer-----	7,943
Ditto and Beanstalk-----	8,621
Ditto and Eleven Brothers-----	2,645
Ditto and Jill-----	1,998
Total-----	21,407

After decrying the general ignorance of the children of well-known literary characters, Mr. Slug points out that among the many criticisms that can be levelled at “Jack and Jill”, was the fact that “the whole work had this one great fault, *it was not true.*” A knock, I think, against the hypocrisy of Statists’ who were fixated on objective truth, even as they evaluated the moral propriety of certain reading materials.⁷⁵

In their exhaustive quest for scientific knowledge, Statists tended to treat their human subjects as children to be taught, or indeed, like wasteland to be converted. For Statists tended to be Whig reformers, whose ideology centred, in part, on quelling the potential rebellion of the lower classes by “improving” them morally and turning them to productive activity. But the unlikely mixture of moralism and statistics, so hilariously parodied by Dickens, was not limited to the work of the Statistical Societies. In fact, it was a double-edged tool that would get a great deal of use by social reformers throughout the Victorian period. As we will see below, this two-pronged approach meshed well with the liberal mode of governmentality, and would be adopted by both the state and

⁷⁵ Ibid, 409-410.

the insurance industry, in order to persuade the public of their duty to adopt a rational, productive and providential approach to their lives

Statistics and the State: the General Register Office and Rational Bureaucracy

The 1830s statistical movement that I have described above was largely driven by reform minded intellectuals who, despite their political ideas and ambitions, amassed statistical data independently of any government office. But, as we saw with the development of the census, statistics also played an essential role in the increasingly centralized bureaucracy of the state. In this section I argue that the creation of the General Register Office (GRO) in 1836 was a crucial step in the British government's attempt to map and measure its population, or to use McRae's phrase, "to know its own."

According to Wolfenstein, the GRO was established not merely through the influence of statistically minded men like Quetelet and John Finlaison (the actuary for the National Debt Office) but primarily as a response to the expansion of the franchise in the Reform Bill of 1832.⁷⁶ The Reform Bill had removed the formerly compulsory membership in the Anglican Church as a prerequisite to voting rights. Since a majority of those who pushed for the Bill were dissenting Protestants, it was not surprising that an alternate system was soon devised to replace the traditional means by which the English government had obtained population data. For centuries, because the Anglican Church was the official religion of the English state, data on the births, marriages and deaths of the population had been collected in Anglican parish records. That meant not only that

⁷⁶ See Headrick, *When Information Came of Age*, 86 and Gabriel K. Wolfenstein, "Recounting the Nation: The General Register Office and Victorian Bureaucracies", in *Centaurus* 49, no. 4 (Nov. 2007): 265-6; Also see Edward Higgs, *The Information State in England: the Central Collection of Information on Citizens since 1500* (London: Palgrave, 2004), 77.

dissenting Protestants, Catholics and Jews had been excluded from the state's population data, but also that in legal cases relating to the transfer of property, any non-Anglican records of birth were not considered valid evidence. Added to this was a more general and longstanding complaint that the current system of registration was insufficiently rigorous in its record-keeping.⁷⁷

With the passing of the Reform act in 1832, newly empowered dissenting Protestants and their supporters campaigned for a new system of registration, one that would count everyone in the country regardless of their religion. The GRO was created with the passing of two new acts: the Registration Act, and the Marriage Act, which made civil registration compulsory for all marriages, requiring every couple to obtain a certificate from the superintendent registrar prior to the marriage. The GRO had four main objectives: tracing descent of property, calculating life expectancy and laws of mortality, ascertaining the health of the nation and charting population growth.⁷⁸

The new system of the General Registry no longer rested upon the pre-existing system of local Anglican parishes, but upon the recently centralized, - and secular- structure of Poor Law Administration. Created just two years previously, with the passing of the Poor Law Amendment Act in 1834, the administration of the New Poor Law was organized so that information passed from Poor Law Unions at the local level, and through a hierarchy of officials until it reached the central government. With the creation of the GRO, the poor law commissioner of each of 626 registration districts across England and Wales was assigned the duty of completing a quarterly

⁷⁷ Wolfenstein, "Recounting the Nation," 265-6.

⁷⁸ Ibid, 267, 271.

civil register, which was then sent to a “regional superintendent registrar” and then on to the London based GRO, for multiple rounds of verification.⁷⁹

This was a massive operation, with “more than 3100 persons, acting under the instructions of the Registrar General.”⁸⁰ By the end of its first year of operation, 1837, 847,149 entries had been passed to the central office in London, with 739,737 of those “certified to be correct.”⁸¹ By 1841 the GRO had taken on the additional the role of managing the census. ⁸²At that point there were 35,000 enumerators each of whom dropped standardized forms off at households , picked them up, and entered the information into standardized books which were then passed on to the Register General. It was the work of officials at the central office to organize this data, in such a way that trends over time could then be analyzed.⁸³

Under the central administrative body of the GRO, data from both the census and civil registration were joined together, and this, A.J. Taylor notes, “opened up new fields of social investigation. It was now possible to observe more closely the trend of vital statistics, to trace the connection between housing, sanitary and industrial conditions and the incidence of disease” and thus to target districts in need of reform. Although the GRO “had no direct access to the decision-making process”⁸⁴ its very structure, situated at the centre but linked to every local authority in the

⁷⁹ Vernon, *Distant Strangers*, 54.

⁸⁰ T. H. Lister to Treasury, 6 November 1837, in Wolfenstein, “Recounting the Nation,” 269.

⁸¹ Wolfenstein, “Recounting the Nation,” 269.

⁸² Taylor, “Taking of the Census,” 717.

⁸³ Vernon, *Distant Strangers*, 55.

nation, enabled it to transform statistical knowledge into social reform. Under the aegis of the GRO's Compiler of Abstracts, Doctor William Farr, "the census was increasingly used to furnish evidence about social problems," particularly those related to public health.⁸⁵ Both the census and civil registration data were used to promote not only reform, but also the prevention of illness and morbidity. Possessing the most up to date and comprehensive vital statistics available, the GRO was able to put everyone on the same page, and did so by regularly publishing not only its statistics, but also its analysis of those statistics. In this way Doctors, local authorities, and even the wider public were able to see such data as the mortality rate in their own city or district and to compare it with the national average. In fact, the publication of these figures even spurred a rivalry between cities, arousing public interest and eventually informing aspects of the new public health law in 1848.⁸⁶

⁸⁴ Desrosières, *The Politics of Large Numbers*, 168.

⁸⁵ Taylor, "The Taking of the Census," 717.

⁸⁶ According to Desrosières, , "This law stipulated that areas with death rates of more than 23 per thousand (the national average put out by the GRO) had to establish "health tables" in support of sanitary reforms." See Desrosières, *The Politics of Large Numbers*, 168. Wolfenstein illustrates the regularity and thoroughness with which the GRO's published its information by quoting a report from the GRO in 1855:

Besides the elaborate annual Return laid before Parliament, in compliance with the sixth section of the Registration Act, a Report relating to London is circulated over the Kingdom on every Wednesday, compiled from the returns received on the preceding Monday, from 136 Registrars of Births and Deaths in the Metropolitan District, which contained at the last census a population of 2,362,236 persons; and 30 days after the end of each quarter a Return is sent to all Boards of Guardians and newspapers, containing similar information for every district in England and Wales in reference to the preceding three months. These publications are accompanied by remarks, in which their contents are generalized, and inferences are drawn on points to which it is desirable that attention should be directed.

The GRO, in Wolfenstein, "Recounting the Nation," 271-2.

Thus, although GRO was an executive, rather than a legislative body, its role of overseeing all data on the condition of the nation's population gave it a unique capacity to effect social change. While it was particularly focused on improvements in public health, statistical analyses soon drew attention to the correlation between disease, mortality and the conditions under which the poor lived. Thus, as Desrosières, notes, the GRO came to play "an essential role in debates on the diagnosis and treatment of a problem that obsessed English society during the entire century: the problem of poverty linked to anarchic industrialization and urbanization."⁸⁷ If the statistical societies were anxious to portray their work as the apolitical pursuit of objective knowledge, the GRO made no such distinction between scientific and socio-political ends. Instead, as Desrosières suggests, the GRO functioned according to the norms of both scientific knowledge production and the rationalizing, modern state. Indeed, through the production of public (official) statistics scientific and bureaucratic authority seem to have reinforced one another.⁸⁸

In just a handful of years, the GRO had realized the vision of its first General Registrar, Lister, by becoming "the centre of a web of communication... an amazing, almost omnipresent, information-gathering body."⁸⁹ With its all-seeing view of the nation, the GRO empowered the English state in a new, and distinctly modern way, for the centralization of information led directly to the centralization of power.⁹⁰ One could argue that the English state had been in the process of

⁸⁷ Desrosières, , *The Politics of Large Numbers*, 168.

⁸⁸ *Ibid*, 8.

⁸⁹ Wolfenstein, "Recounting the Nation," 269.

⁹⁰ David Eastwood, "'Amplifying the Province of the Legislature': the Flow of Information and the English State in the Early Nineteenth Century," *Historical Research*, 62, no. 149 (October 1989): 278.

centralization for centuries by this point, but, as Eastwood demonstrates, the will of the central government had always been limited by its necessary partnership with local governments, necessary because it had always relied on those governments for information. With the New Poor Law and the GRO, this had changed, for the commissioners of each district across the country were now appointed by those at the centre. Through the body of the GRO, the central government was now able to simultaneously “command, filter and deploy information,” an ability that Eastwood suggests, “constituted the kernel of a revolution in government.”⁹¹

⁹¹ Eastwood, “Amplifying,” 278. Leonard J. Hume explains that an extended debate about whether this period could be called a “revolution in government” originated in an article by J. Bartlett Brebner in 1948. Contrary to A. V. Dicey’s claim that Benthamism largely shaped the laissez-faire individualist character of the government in the Victorian period, Brebner asserted that this was a period of intense state intervention, and that it was this interventionism which was shaped by Benthamite thought. Following Brebner’s article, scholars David Roberts and Oliver MacDonagh reinforced Brebner’s argument by asserting that the administrative structure of what would become the welfare state was built in this period, but they viewed these developments as pragmatic responses to social problems, and not as the outcome of principled ideological positions. Other interpretations of the legacy of Bentham and of the nature of the administrative state in the mid nineteenth century followed. The key texts in this scholarly debate, which was most active from the late 1940s to the mid-1960s were as follows: J.B. Brebner, “Laissez Faire and State Intervention in Nineteenth Century Britain,” *Journal of Economic History*, 8 (1948); David Roberts, *Victorian Origins of the British Welfare State* (New Haven, CT: Yale University Press, 1960); Oliver MacDonagh, *A Pattern of Government Growth 1800–60: The Passenger Acts and their Enforcement*. (London: MacGibbon and Kee, 1961); and Henry Parris, “The Nineteenth Century Revolution in Government: a Reappraisal Reappraised,” *Historical Journal*, 3 (1960), 17. For summaries of this debate see Leonard J. Hume “III. Jeremy Bentham and the Nineteenth-Century Revolution in Government,” *The Historical Journal* 10, no. 3 (1967): 361, and G. B. A. M. Finlayson, *England in the Eighteen Thirties: Decade of Reform* (London: Edward Arnold, 1969). Some of the key texts in the debate are collected in P. Stansky (ed.), *The Victorian Revolution: Government and Society in Victoria's Britain* (New Viewpoints: New York, 1973). For a recent treatment of this topic, see Stephen Conway, “Bentham and the nineteenth-century revolution in Government,” in *Jeremy Bentham*, ed. Frederick Rosen, (London: Routledge, 2017).

It is not only the government's more comprehensive access to and control over knowledge of the nation that gave it more power. The GRO's impact on governance went beyond the maxim that "knowledge equals power." It is the *nature* of the power conferred by statistical knowledge that defines the early Victorian period as a shift towards modern liberal governance. The GRO helped to facilitate the rise of the professional bureaucratic expert, the regulation and standardization of how data is reported and presented, and the panoptic surveillance of a population that came to recognize itself in statistical representation.⁹² Each of these changes have been identified by social theorists as characteristic of modern liberal governance.

The rise of professional experts and the regularisation of data are both related to the ascendance of a modern civil bureaucracy. Being at the "centre of a web of communication," the GRO's role in collecting data and producing statistical knowledge was crucial to this development, but it was also part of the wider statistical movement and state-led social investigations of the early Victorian period. According to Eastwood, in the 1830s and 40s, as agencies of the state like the GRO began to handle ever greater volumes of information, and used ever more sophisticated means to analyze and represent this data to the public, they acquired a "growing monopoly over

⁹² Ibid, 293. For another account that situates the GRO in the context of emerging disciplines and institutions in the social and administrative sciences as well as the rise of professionalization and specialization please see Martin Daunton, *The Organisation of Knowledge in Victorian Britain* (Oxford and New York: Oxford UP, 2005); A broader discussion of the connections between information, science, the "bureaucratic state" and modernity in nineteenth century Europe can be found in Jeremy Black, *The Power of Knowledge: How Information and Technology Made the Modern World* (New Haven: Yale University Press, 2015). For a comparative account of the role of censuses and permanent government agencies for data collection in solidifying modern state power in nineteenth and twentieth century Europe please see T. Brambor, A. Goenaga, J. Lindvall, and J. Teorell, (2016). "The Lay of the Land: Information Capacity and the Modern State," *STANCE Working Paper Series, 2* (Lund, Sweden: Lund University Press, 2016).

official information.” In fact, although their original function had been to inform the legislature, “a bureaucracy of self-styled experts came increasingly to question parliament's ability to assimilate the weight and subtlety of the information with which it was being provided.”⁹³ Agencies like the GRO were not merely politically independent; they were at the centre of a new kind of imperialism, a rational bureaucracy that may have begun as a tool of government, but which soon began to shape the modern state itself.

According to Weber, in a rational bureaucracy, trained professionals occupy their positions for the duration of their careers; these positions are arranged hierarchically and are impersonal in nature (that is, authority rests in the office, and not the person holding the office). These characteristics ensure that the organization functions in a stable and consistent manner. There is, moreover, an emphasis on standard rules and regulations and means-ends (instrumental) calculation, which facilitates greater predictability of results throughout the organization, minimizing uncertainty and contingency. In this way, the bureaucracy is able to control outcomes at a distance.⁹⁴

As Wolfenstein notes, the GRO possessed many of the characteristics of the rational bureaucracy. Beyond the fact that its positions were permanent, and hierarchically ordered, the GRO, from its earliest days, insisted on universal adherence to its standards and regulations. Wolfenstein relates two cases in which the new authority of the GRO clashed with older, local authorities. In one case, the second Register General, George Graham, found himself in a

⁹³ Eastwood, “Amplifying,” 292.

⁹⁴ Max Weber, (1922) *Economy and Society: An Outline of Interpretive Sociology*, (Oakland, CA: University of California Press, 1978) 956-960, 1002.

quarrelsome correspondence with an Anglican bishop, who defended the right of one of his clergymen to refuse to register a marriage through the GRO (in accordance with the Marriage Act.)⁹⁵ In the second case, Graham again found himself involved in a tetchy correspondence. This time it was county magistrates who resented the GRO reaching into their own territory. The Register General had learned, in 1858, of numerous instances in which coroners refused to hold inquests into the causes of death because the county magistrates tended to withhold payment for inquests they deemed, post facto, to have been unnecessary. Because the collection of accurate death statistics was a central objective of the GRO, such a breach in the reporting of data was regarded as intolerable. The Register General thus sent out a circular to all county coroners, in which it denigrated county magistrates for obstructing justice and the regularity of death reports. The county magistrates, who had always acted independently, were deeply offended, and wrote to the Home Office complaining that the GRO was overreaching their authority. After much correspondence and argument, the GRO got its way.⁹⁶

What these cases reveal to Wolfenstein is that “by the late 1850s... the GRO had become integrated into the functioning of the state,” and also that it “had a great deal of influence in the regularization of reportage.”⁹⁷ Ensuring uniform statistics was important enough to the GRO that it did not hesitate to tread on the territory of pre-existing modes of authority. Porter sees the GRO’s

⁹⁵ Wolfenstein, “Recounting the Nation,” 273-275. The Anglican Church had had the most critical response to the establishment of the GRO, for it lost its old monopoly over registering births marriages and deaths.

⁹⁶ *Ibid*, 276-279.

⁹⁷ *Ibid*, 279.

insistence on regular reports as part of a wider pattern of behaviour in the information-centred institutions emerging in European states in the nineteenth-century:

The effort by administrators and professionals to create information in a sufficiently coherent or standardized form that ... could be put to use in far- away places by people who lacked intimate knowledge of the conditions of its production. Science plays an important role in this production (however incomplete) of homogeneity, but here, and often, it depends on an alliance with bureaucratic power.⁹⁸

The rational characteristics of bureaucratic agencies such as the GRO enhanced the government's ability to know and control its population from a distance. It was Weber who first identified bureaucratic power and science as partners in this push to rationalize. And while the statistical work of institutions like the GRO may only have been "quasi-scientific" in its early history, it was nevertheless motivated by what Porter calls a "scientific spirit...associated with systematizing, centralizing, and mathematizing".⁹⁹

With every decade, the GRO expanded its workforce to include ever more office holders, each charged with specific functions in one of three departments: Correspondence, Accounts and Arrangement and Indexing of Registers. Later, in 1842, a fourth department was added: Statistics. While those working within the General Register Office were modestly titled "clerks," as Wolfenstein notes, they were "clerks in name but professional bureaucrats in fact."¹⁰⁰ Their professional expertise in organizing and producing the vital statistics of the nation was an essential part of what made the GRO a rational bureaucracy constitutive of the modern state.

⁹⁸ Theodore Porter, "Introduction: The Statistical Office as a Social Observatory" in *Centaurus*, 49 (2007): 258-260, 260.

⁹⁹ Porter, "Introduction," 258.

¹⁰⁰ Wolfenstein, "Recounting the Nation," 268-271.

The defining feature of bureaucratic administration, according to Weber, is “domination by virtue of knowledge.”¹⁰¹ The “clerks” in the GRO were experts because they had exclusive access to the production of a particular form of knowledge, one which was essential to the functioning of the state. With the GRO, as with similar state agencies and investigative select committees emerging in the mid Victorian period, “it was information which constituted the currency of expertise, and as information became more specialized and extensive so the experts who could claim intellectual mastery over it became more important to government.” So much so that “gradually central government exchanged a partnership with the localities for a partnership with experts.”¹⁰²

The GRO was therefore an early example not only of rational bureaucracies, but also of what Giddens has called the “expert system”. This is a “system of technical accomplishment or professional expertise that organizes large areas of the material and social environment”.¹⁰³ Our lives today are so enmeshed in expert systems in which we play no active role that we are hardly aware of them. We tend not to question our faith in the structural integrity of our homes or the safety of our roads and traffic systems, but these are just two examples Giddens gives us, of how our everyday environment has been organized and guaranteed by unseen systems of experts. For Giddens, expert systems play a similar role in modernity as ‘symbolic tokens’ such as money do. That is, they are both “disembedding mechanisms” which “remove social relations from the

¹⁰¹ Weber, *Law in Economy and Society*, (Cambridge, MA: Harvard University Press, 1954), xxxii-xxxv.

¹⁰² Eastwood, “Amplifying,” 293.

¹⁰³ Giddens, *The Consequences of Modernity*, 27.

immediacies of context. Such systems presume, yet also foster the separation of time from space as the conditions of the time-space distancing which they promote.”¹⁰⁴

On the one hand, such a system bridges distances by incorporating a wide range of particular social contexts into its own logic. This, you may remember, is what the Calenberg friendly society did when it expanded its membership – and thus its collective risk pool – to include those from distant communities. On the other hand, because an expert system does this through means that are out of both the sight and understanding of most people affected by it, it requires and elicits an attitude of trust or faith in the legitimacy of those means. In the case of the GRO, the distances between the central government and all the localities of the nation were bridged through the practice of simultaneously and continuously gathering data from them. The collection of statistical data, and its analysis at the central office, provided the government with a continually updated and detailed picture of the entirety of the nation, something that would not have been possible without the coordination of a host of people with expert knowledge.

When an expert system such as the GRO establishes itself it usurps local forms of authority and knowledge and instead provides “‘guarantees’ of expectations across distanced time-space.”¹⁰⁵ Because the British government used the information produced by the GRO to make policy decisions it had to trust that that information was accurate and that the abstract principles used by the statisticians and analysts to find meaningful patterns in the data were sound. As far as the populace was concerned, some people did distrust or resent the way the GRO encroached onto the terrain of pre-existing forms of governance and into the private lives of citizens. Indeed, some

¹⁰⁴ Ibid, 28.

¹⁰⁵ Ibid, 28.

saw the collection of household data as ““an attempt to create tax lists or even to erode civil liberties.”¹⁰⁶ Yet, as Wolfenstein tells us, in the case of the GRO:

A previously unknown governmental bureaucracy quickly and smoothly integrated itself into the life, death, and day-to-day (and decennial) actions of the British people... There were no riots in the streets, no protests outside Parliament, and no widespread refusals to participate in this new reportage. Indeed, at first blush, the whole transformation seemed so smooth as to be nonapparent.¹⁰⁷

That the legitimacy of the GRO was generally and almost immediately accepted is rather remarkable in a nation and an era notably suspicious of centralizing and interventionist tendencies in government!¹⁰⁸ Perhaps this legitimacy can be explained by the fact that, like all expert systems, the GRO functioned in a way that was both ubiquitous and invisible. After all, ordinary people only ever encountered the GRO when an enumerator dropped off and picked up census forms, or when they submitted marriage registration forms to an official, and later of course, when they read its official reports in the newspapers. It seemed to function as though it had always been there- and such an arrangement seems to have made general trust in its motives and methods the default response.

The development of the GRO into an unseen but pervasive presence in British society is illustrative of a larger historical development in which “modern state institutions became unquestioned parts of the social and political landscape.”¹⁰⁹ Indeed, the GRO’s twin characteristics of ubiquity and invisibility are central features of the “panoptic” style of governance which

¹⁰⁶ Wolfenstein, “Recounting the Nation,” 267.

¹⁰⁷ Ibid, 280.

¹⁰⁸ Ibid 269; Desrosières notes that “At the time, public opinion in England was against the interventions of a national executive body that was readily presumed to be of “Bonapartist” tendencies.” See Desrosières, *The Politics of Large Numbers*, 168.

¹⁰⁹ Wolfenstein, “Recounting the Nation,” 261.

Foucault associated with modern liberal states. The Panopticon was the name given by rationalist utilitarian thinker Jeremy Bentham to his model of an ideal prison, in which a guard tower was situated at the centre of a circle of individual cells. This arrangement ensured that the warden had an all seeing perspective while the inmates in their separate cells could see neither the warden nor each other.¹¹⁰

In Bentham's model, rational, efficient control of prisoners was built into the architecture of the prison itself. The total view of the prison population, and the separation of that population into individual cells optimized surveillance while precluding any kind of coordinated resistance among the prisoners. It is this architecture of control that Foucault and others have seen as a compelling metaphor for the way that populations are governed in modern liberal states. For control over large, diverse and mobile populations cannot be achieved by physical proximity and force, and need not be when there are more abstract means of coercion that can be managed from a distance. In its centralized structure-unseen but all-seeing- and its production of demographic information, the GRO was both emblematic and constitutive of this liberal mode of governance. The statistical division of the population into different classifications, which I will discuss in greater detail below, certainly played a role similar to the separate cells of the panopticon, neutralizing the potential for mass resistance.

Yet the parallels between Bentham's panopticon, and the liberal mode of governance are not exact. For instance, Bentham's structure prevented the prisoners from seeing each other,

¹¹⁰ Jeremy Bentham, (1843), "Panopticon," in *The Works of Jeremy Bentham*, Vol. 4, ed. John Bowring, Available at <https://oll.libertyfund.org/titles/bentham-the-works-of-jeremy-bentham-vol-4>. and Michel Foucault, *Discipline and Punishment*, (New York: Vintage Books, 1995), 198.

solitary reflection and atonement being key tenets of prisoner reform at the time.¹¹¹ This was not exactly the case in the liberal mode of governance arising in the mid nineteenth century. It is true that an individualist ethos was central to moral, economic and political discourses in that period. Yet that was only one side of the liberal equation. The other side was that, unlike the prisoners in their cells, the British public *was able to see itself*. In the “avalanche” of statistical reports published and publicized, the populace saw itself represented in the aggregate and this image of itself would become a key instrument in its governance.

Patterns in the Aggregate: the Law of Large Numbers and the Average Man

Whether they are compiled by actuaries, scientific institutions or state-related organizations like the GRO; whether they are an accumulation of criminal, medical, or economic data, statistics always represent mass data. Just as risk is identified by calculating multiple probable outcomes rather than measuring any single, isolated outcome, there no such thing as a statistical representation of one individual person or unit of information. All the actions made possible by statistics - the ability to identify large regularities in a population, to predict future patterns in society and to intervene in order to alter those patterns - would not be possible without the aggregation of data. While probability theorists of the eighteenth century attempted to harness the potential of large numbers, and grappled with the challenge, as Desrosières puts it, of “conceiving the unity of diverse phenomena,” it wasn’t until the nineteenth century that statistical tools were found for determining “laws” within large numbers with which social phenomena could be objectified.¹¹²

¹¹¹ Boyd Hilton, *The Age of Atonement. The Influence of Evangelicalism on Social and Economic Thought, 1785-1865* (Oxford: Clarendon Press, 1988)

¹¹² Desrosières, , *The Politics of Large Numbers*, 68.

The “law of large numbers” had first been demonstrated by Jacob Bernouilli in his work *Ars Conjectandi* published in 1713. As you may remember from the beginning of this chapter, Bernouilli found that the more times one tossed a coin, the more likely one would be able to estimate not the average outcome, but the degree by which the observed average and the true average differed. Bernouilli discovered that the more times one observes a phenomenon the more probable that a stable degree of error in those observations could be defined.¹¹³ What this signified was that with a large amount of data and repeated observations the probable degree of error for observations of all kinds could be calculated, even those for which a true average was unknown.

Bernouilli’s was the first of a number of methods proposed for the measurement of uncertainty. Such approaches are not unlike the way a visual artist might create form by defining the negative space around it, for the unknown dimensions of some object of inquiry may be approximated by defining ever more clearly the limits of probability calculations. Following Jakob Bernoulli, his nephew, Nicolas Bernoulli, and Abraham de Moivre continued to measure uncertainty by working on statistical samples. Seeking to determine how representative of the whole a sample of data might be, de Moivre observed that the outcomes of samples tended to be distributed around a norm. The appearance of this “normal distribution”, better known to lay people today as the “bell curve,” struck de Moivre as a proof that providential design undergirded even the most random and chaotic of phenomena. He concluded that “Although Chance produces irregularities, still the Odds will be infinitely greater, that in process of Time, those Irregularities

¹¹³ Bernstein, *Against the Gods*, 122.

will bear no proportion to recurrence of that Order which naturally results from ORIGINAL DESIGN.”¹¹⁴

It was not unusual in the eighteenth century for those discovering regularities within what first appeared to be chance phenomena, to attribute them to divine providence.¹¹⁵ By the nineteenth century this divine attribution was less pronounced, but the order to be found within large numbers continued to impress probability theorists and statisticians. According to Porter, the French mathematician Pierre-Simon Laplace viewed probability as a tool made necessary by the limitations of human calculation. Without such limitations, “[a] being who could follow every particle in the universe, and who had unbounded powers of calculation, would be able to know the past and to predict the future with perfect certainty.”¹¹⁶ That is to say, certain knowledge and order may be beyond our capacity, but would be apparent to any being- like God- with an infinite view which could take in each detail. For Quetelet however, individual details were not necessary if large patterns could be discerned at the macro level.

It was Quetelet, the Belgian astronomer behind much of the English statistical movement, who found a way to calculate errors in observation in such a way that an average measurement of any phenomenon could be determined. In the 1820s and 30s Quetelet had gone on a measuring spree, “examining birth and death rates by month and city, by temperature and time of day...mortality by age, profession locality, season, in prisons and hospitals.” He measured

¹¹⁴ Ibid, 128.

¹¹⁵ Theodore Porter, *Encyclopedia Britannica Online*, s.v. “Probability and Statistics.” Accessed August 2017. <https://www.britannica.com/science/probability>.

¹¹⁶ Ibid.

people's "height, weight, growth rate and strength, and developed statistics on drunkenness, insanity, suicides and crime."¹¹⁷ But it was when he measured the chest sizes of Scottish regimental soldiers that he discovered a new way to calculate the "law of errors" and to construct an average of a phenomenon. Previously, there had been two competing methods for determining the degree of error in observations of phenomena; one way was to increase the number of observations of one phenomenon, this was a "binomial law"- like the repeated coin tosses of Bernoulli. The other came from astronomy, wherein a law of error could be determined from "one measurement of several different objects." Quetelet found a way to combine these approaches in such a way that an average measurement of an object- soldiers' chests, for example- could most accurately be determined.¹¹⁸

It was in his 1835 work "l'homme moyen", that Quetelet first applied the combined methods of astronomical measurement and binomial distribution to macro-social phenomena. He argued that "the greater the number of individuals observed, the more do peculiarities, whether physical or moral, become effaced, and allow the *general facts* to predominate, by which society exists and is preserved."¹¹⁹ From these "general facts" emerged the l'homme moyen- the average man. The average man represented the mean attributes of a nation, "in relation to which all other

¹¹⁷ Bernstein, *Against the Gods*, 159.

¹¹⁸ Desrosières, , *The Politics of Large Numbers*, 74-5; and Hacking, *The Taming of Chance*, 105-107. Hacking explains Quetelet's innovation in this way: "Now, whether we think of the Normal distribution as an error curve or as the limit of a binomial coin-tossing game, we are concerned with what we think of as real quantities. The coin has a real objective propensity (so we suppose) to fall heads in a certain proportion of tosses. The celestial position being measured is a real point in space, and the distribution of errors, we suppose, is an objective feature of the measuring device and the measurer. Quetelet changed the game. He applied the same curve to biological and social phenomena where the mean is not a real quantity at all, or rather: he transformed the mean into a real quantity"

¹¹⁹ Bernstein, *Against the Gods*, 160.

men of the same nation must be considered as offering deviations that are more or less large. The numbers that one would have on measuring the latter, would be grouped around the mean.”¹²⁰ It was no coincidence that at the very time Quetelet was engaged in this work, he was also actively working to establish statistical organizations in England: the more data of all kinds that could be accumulated on that populace, the more detailed the mould of the average man of that nation would be. Then, the central tendencies of the nation could be charted over time, predicted, and even directed, as could the characteristics of those deviating from the norm. Now, just as astronomers had found laws determining the movements of heavenly bodies, it seemed that individual lives were determined by unseen social laws. Quetelet referred to this study of social laws as “social physics” but we know it better today as quantitative sociology.¹²¹

In the same year that Quetelet first published his ideas about l’homme moyen, French mathematician Poisson first coined the term “the law of large numbers” for the regularities that could be discovered in aggregate data. This “universal law” ensured that “if one observes a very considerable number of events of the same kind, depending on causes that vary irregularly ... then one finds that the ratios between the numbers of events are very nearly constant.”¹²² Again, the idea that constants could be found in the most disparate phenomena was a thrilling confirmation that ours is an ordered world. But this order could only be grasped in the *aggregate*. Thus, “in statistical affairs” Poisson wrote, “the first care before all else is to lose sight of the man taken in isolation in order to consider him only as a fraction of the species. It is necessary to strip him of

¹²⁰ Quetelet, quoted in Hacking, *The Taming of Chance*, 105.

¹²¹ Hacking, *The Taming of Chance*, 39.

¹²² Poisson, quoted in Hacking, *The Taming of Chance*, 95.

his individuality to arrive at the elimination of all accidental effects that individuality can introduce into the question”¹²³

Neither Poisson’s “law of large numbers”, nor Quetelet’s “average man” went unchallenged by their intellectual peers. According to Hacking, Poisson’s theorem was sharply criticised by the members of de l’Academie des Science, who questioned both its precision and its novelty.¹²⁴ And yet, the term “law of large numbers” seems to have ignited the imagination of the public in France. “No matter that hardly anyone in France understood Poisson’s mathematics,” Hacking says, the regularities to be found in any large number of events,

was taken to denote a profound fact about the world....Thanks to superstition, laziness, equivocation, befuddlement with tables of numbers, dreams of social control, and propaganda from utilitarian’s, the law of large numbers – not Poisson’s theorem but a proposition about *the stability of mass phenomena* - became, for the next generation or two, a synthetic apriori truth.¹²⁵

And while few in England took Quetelet’s “average man” literally, and mathematicians like Cournot attacked it for lacking theoretical vigour, many people were nevertheless drawn powerfully to Quetelet’s arguments.¹²⁶ His efficient “ability to convert from volatile individuals to social solidity” was particularly attractive to the burgeoning social sciences, which could use such reasoning to “justify the autonomous existence of the whole.”¹²⁷ But the average man was understood by many to be a kind of shorthand, and indeed Quetelet consciously used analogies

¹²³ Quoted in Hacking, *The Taming of Chance*, 81.

¹²⁴ Hacking, *The Taming of Chance*, 104, Also, Desosieres, *The Politics of Large Numbers*, 89-90

¹²⁵ Hacking, *The Taming of Chance*, 104. My emphasis.

¹²⁶ Hacking, *The Taming of Chance*, 107. On Cournot’s criticisms, see Desrosières, *The Politics of Large Numbers*, 95.

¹²⁷ Desrosières, *The Politics of Large Numbers*, 67, 95.

that would enable “the reflective but less gifted to understand something conceptually embarrassing.”¹²⁸ In Hacking’s view, Quetelet’s demonstration of how human traits and behaviours clustered around a mean was far from coherent. In it “(t)he mathematics of probability and the metaphysics of underlying cause were cobbled together by loose argument to bring an ‘understanding’ of the statistical stability of all phenomena.”¹²⁹

Indeed, Hacking suggests that the incoherence of the concepts – smoothed over by Quetelet’s rhetoric- stemmed from the incomprehensible nature of the data accumulated in the “avalanche of numbers” at the time. That is, statistics had revealed a world of overwhelming complexity that could not easily be accommodated within one coherent theory or framework. As Hacking sees it, the fusion of statistics and probability calculation and the discoveries of statistical stability at this time are not proof of deterministic laws, but rather the beginning of its erosion- the first taming of chance. Thus “a deterministic world view was threatened” by the new statistical phenomena, and it was in response to this that Quetelet, his audience, and many others of the period imposed a deterministic reading onto statistical regularities.¹³⁰

¹²⁸ Hacking, *The Taming of Chance*, 110.

¹²⁹ Hacking explains Quetelet’s argument on pages 110-112.

¹³⁰ Ibid, 114. Metz argues that the statistical argument “drew its strength from the revelation of regularities and the quasi-Newtonian assumption that behind all probabilities there existed some great deterministic laws. Out of this consideration sprang the Laplacian demon, out of it grew a kind of Benthamite demon, the ruler of the Panopticon. It is the deterministic “if” behind utilitarian statistics. This idea inspired environmentalist enthusiasm, and was responsible for the intimate relationship between statistics and social reform for years to come.” See Karl H. Metz, “Social Thought and Social Statistics in the Early Nineteenth Century: the Case of Sanitary Statistics in England,” *International Review of Social History*, 29 (1984), 261-2.

Statistical Fatalism?

Both the heuristic tool of the average man and the statistical effacement of the individual helped to spark a profound debate about determinism across Europe, a debate that informed intellectual developments and social policies until well into the twentieth century. To what extent did statistical knowledge allow room for the freedom of individuals to shape their destinies? The word determinism itself was not used in English until the 1840s. But what the work of Quetelet, Poisson and others seemed to suggest to the wider reading public was the idea of “statistical fatalism”-that the free will of individuals was constrained by the regularity of large patterns in the population.¹³¹ The public was not, in fact, correct to draw that conclusion from either Poisson or Quetelet’s arguments. Just because a certain number of people commit suicide or adultery or steal from their employer each year does not mean that the wills of a certain number of individuals are constrained to perform these actions. But the concept of a statistical regularity, and of an aggregate phenomenon like the average man –an abstract entity treated as a real thing with its own characteristics- was new to this public. And, as with today’s public, the conceptual thought behind such theories and abstract categories was beyond the grasp of most people.

It is easy to see why the conclusions of mathematicians and scientists working on probability and statistics were interpreted as fatalistic by those outside that small field of expertise when these experts themselves were so unrestrained in their language. In 1832, for example, reflecting on recent statistical publications, which showed the astonishing regularity with which particular crimes were committed each year.¹³² Quetelet had concluded in a letter to his friend,

¹³¹ Desrosières, *The Politics of Large Numbers*, 80-82; Hacking, *The Taming of Chance*, 114-124.

¹³² Hacking, 75-77; Desrosières, 10.

L.R. Villermé, that: “It is society that prepares the crime; the guilty person is only the instrument who executes it. The victim on the scaffold is in a certain way the expiatory victim of society. His crime is the fruit of the circumstances in which he finds himself.”¹³³

Unsurprisingly, these law-like regularities in macro-social phenomena were received by many as an alarming repudiation of the individual will. Carlyle, for example, remonstrated against the way that the unique lives of individuals were obscured beneath the abstraction of the average or the mean in statistical representations.¹³⁴ In his famous pamphlet on Chartism, he regretted the so far ineffectual attempt of statistics to answer questions on the “Condition of England” question, especially regarding the question of whether the working class could sustain itself. Statistical representation was like the ‘sieve of Danaides,’ through which much that mattered filtered through the grasp of its container. Mere numbers and tables cannot capture everything: “The labourer’s feelings, his notion of being justly dealt with or unjustly; his wholesome composure, frugality, prosperity in the one case, his acrid unrest, recklessness, gin-drinking, and gradual ruin in the other,—how shall figures or arithmetic represent all this?”¹³⁵

¹³³ Quoted in Hacking, *The Taming of Chance*, 114.

¹³⁴ Karl H. Metz, “Paupers and Numbers: The Statistical Argument for Social Reform in Britain,” in *The Probabilistic Revolution Volumes 1 and 2 and Volume 1; Ideas in History*, ed. Lorenz Krüger, Lorraine Daston, Michael Heidelberger, (Cambridge MA: MIT Press, 1987). During the period of industrialization. “The attitude that counting men instead of weighing them, which was generally ascribed to the statisticians by their critics, was unbearable... Statistics, they claimed, reduced men to averages, to a mean man that only existed in one’s fancy,” 348.

¹³⁵ Metz, “Social Thought and Social Statistics,” 261. For more on Carlyle’s critiques of statistics see Wolfenstein, “Recounting the Nation,” 265, and Timothy Alborn, *Regulated Lives: Life Insurance and British Society, 1800-1914* (Toronto: University of Toronto Press, 2009).

While Dickens' early satirical treatments of statistics centred on the frivolity and hypocritical moralism of many statistical accounts, his later criticisms were levelled at the growing conceit that human behavior could be proved to follow certain laws. In *Hard Times*, his most direct attack on statistical fatalism, Mr. Gradgrind is the ultimate caricature of utilitarian rationality and of a world view that reduces all human life to numbers and immovable scientific laws. Indeed Gradgrind introduces himself as "a man of facts and calculations...with a rule and a pair of scales and the multiplication table always in his pocket, sir, ready to weigh and measure any parcel of human nature and tell you exactly what it comes to. It is a mere question of figures, a case of simple arithmetic." At the end of the book, Gradgrind's own son, guilty of robbing his employer, comforts his father with the very philosophy he had taught him: "so many people are employed in situations of trust; so many people, out of so many, will be dishonest. I have heard you talk a hundred times of its being a law. How can I help laws?"¹³⁶

More than anything, such criticisms of statistical "laws" focused on their dehumanizing effect upon those they claimed to represent. This dehumanization was apparent in the upsurge of social investigations, in which statisticians and well intentioned reformers of all stripes descended into the working and living environments of the lower classes to observe, quantify, analyse and experiment with the moral and physical characteristics of the poor. By the mid-Victorian period the use of surveying instruments, "the rule and pair of scales and the multiplication table." had extended beyond the domains of the estate land, the laboratory, and the botanical garden, into the streets and homes and habits of people. Now and for the first time, the process of objectification,

¹³⁶ Charles Dickens, (1854) *Hard Times* (New York: The New American Library, 1961), 12.

by which the future was made malleable and by which time, space, nature, trade and risk were tamed, was now directed at the social realm.

Despite enjoying no small amount of fame during his life, Quetelet's role in this process of social objectification has long been overlooked. Both Hacking and Desrosieres view his innovation in applying the bell curve to social and biological phenomena as a founding moment of sociological thought. For Hacking this moment occurred not with Quetelet's work on the average man in the 1835 work, but in 1844, when he,

transformed the theory of measuring unknown physical quantities, with a definite probable error, into the theory of measuring ideal abstract properties of a population. Because these could be subjected to the same formal techniques they became real quantities. This is a crucial step in the taming of chance. He began to turn statistical laws that were merely descriptive of large-scale regularities into laws of nature and society that dealt in underlying truths and causes.¹³⁷

The result was that means or averages, which are abstract, mathematical constructions, came to be treated as objectively real, and as a foundation upon which social engineering could begin.

For Desrosieres, the swing towards the objective or "frequentist" approach to probability in the nineteenth century –and public enthusiasm for the regularities discovered in mass phenomena - can be understood as a response to the social and political upheavals of the period. Quetelet and his contemporaries began to think about the social realm in a starkly different way than their predecessors had. The subjective or "epistemic" approach to probability of Laplace, having focusing on degrees of belief and the rational choices of individuals, belonged to the intellectual context of the Enlightenment. Disturbed by the sudden events of the French revolution

¹³⁷ Hacking, *The Taming of Chance*, 108.

and the unforeseen effects of industrialization, Desrosières argues, people in the nineteenth century wanted to understand society as an entity in itself, to uncover its internal mechanisms:

Not only was this society henceforth seen as a mysterious whole, but it was seemingly viewed as if from the outside. The objectifications and macrosocial realities shown by Quetelet responded to this kind of anxiety...The reasonable, prudent human nature embodied by the enlightened eighteenth-century scholar was succeeded by the normal man, the average of a large number of different men, all of whom shared in a sum that exceeded them.¹³⁸

No matter how poorly understood, or how conceptually unsound the average man was, his traits and behaviors were measurable, predictable and improvable. So too were the traits and behaviors of those sections of the population that could be shown to deviate from the average man. The conversion of accumulated population data into aggregate and calculable forms of knowledge was treated as a stable enough foundation for the policies and sciences of “the social” to proceed with their investigations and interventions.

Objectification, according to Desrosières, is about “providing solid things on which the managing of the social world is based.” The constitution of “the social” as an object of management was achieved when probabilistic efforts to master uncertainty were joined with the building of “administrative and political spaces of equivalence” wherein a huge diversity of events and people were statistically encoded into quantitative terms.¹³⁹ That Quetelet was at the centre of both of those efforts, the probabilistic and the statistical, is remarkable. But far more remarkable is what the objectification of the social made possible in the rest of the nineteenth century: as an object of liberal governance, society was now constituted by host of a new identities stemming

¹³⁸ Desrosières, *The Politics of Large Numbers*, 78.

¹³⁹ *Ibid*, 10.

from quantitative and aggregate population data; these new identities were then made the object of risk classification and management by both the state and private enterprise.

Binding and Dividing: the Constitution of the Social

The degree to which statistical representation shapes the way we view ourselves and our place in society is rarely appreciated. This may be because the gathering and analysis of statistical data by corporate and state agencies occurs so continuously that it tends to escape our notice. This has particularly been the case in recent decades as ever more of our activities as citizens and consumers are recorded digitally. But many of us are also resistant to the idea that something as personal and cultural as identity could in any way be shaped by entities as seemingly divorced from our daily lives as state bureaucracies and marketing divisions. In fact, the perception that the state exists on a plane entirely separate from our own individual lives and identities is a tribute to the enduring success of the liberal mode of governance which emerged in nineteenth century Europe.

The ability to surveil and control political subjects from a distance is a key characteristic of modern states and of liberal governments in particular.¹⁴⁰ This was the mode of governance which developed institutionally in mid- nineteenth century Britain, even as the discursive field of governance was dominated by the rhetoric of ‘less government,’ the political correlate of the self-regulated market. Yet governing from a distance did not entail “less” governmental interference. For, behind the apparently autonomous functioning of the laissez-faire economy and a society composed of rational individuals pursuing their self-interest lay an unprecedented

¹⁴⁰ See Nikolas Rose and Peter Miller, “Political Power Beyond the State: Problematics of Governmentality,” *The British Journal of Sociology* 43, no. 2 (1992): 173.

level of state intervention into the lives of subjects.¹⁴¹ The census and other statistical projects were key technologies facilitating that intervention, allowing the state to access, interpret and represent the characteristics of subjects in ways that made the population more manageable. That is, the population was organized into categories that were most relevant to the concerns of government, those relating to the health, security and productivity of the nation as a whole. Once newspapers began to publish population statistics in the mid nineteenth century, people began to identify both with the aggregated characteristics of the nation and with the specific categories into which their own selves fell.

Just as surveying and mapping the lands of estates changed the meaning and purpose of those lands, statistical representations did not merely describe populations but constructed them anew. This reconfiguration of the populace is what Ian Hacking has referred to as “making up people” and what sociologists and social theorists have described as ‘the constitution of the social.’¹⁴² The construction of the social, as a domain separate from economic and political domains is an ongoing process.¹⁴³ But it is a process founded in a definite, if gradually

¹⁴¹ Karl Polanyi forcefully challenged the received wisdom that “free” markets were free of government intervention in *The Great Transformation: The Political and Economic Origins of our Time* (Beacon Press, Boston, 2001), 135-155.

¹⁴² Ian Hacking 'Making up People' in *Reconstructing Individualism: Autonomy, Individuality and Self*, ed. Thomas C. Heller, Morton Sosna, and David E. Wellbery, (Stanford, CA: Stanford University Press). Also see Hacking's 'Biopower and the Avalanche of Printed Numbers,' *Humanities in Society* 5 (1982): 279, and Alain Desrosières, and Laurent Thevenot, *Les Catégories Socioprofessionnelle* (Paris: La Découverte, 1988); and S.R.S. Sueter, “The Genesis of the Registrar-General's Social Classification of Occupations,” *The British Journal of Sociology* 35 (1986): 522. For a concise historiography of the idea of ‘the social’ see James Vernon, “The Ethics of Hunger and the Assembly of Society: The Techno- Politics of the School Meal in Modern Britain,” *The American Historical Review* 110, no. 3 (2005).

¹⁴³ Mary Poovey, *Making a Social Body: British Cultural Formation, 1830-1864*. (Chicago: University of Chicago Press, 1995), 6-7.

emerging, development: the subsumption of local boundaries through the centralizing efforts of modern states. As I have recounted above, the enclosure movement had uprooted actual local boundaries in the seventeenth and eighteenth centuries. At the same time, this development entailed the colonization of local knowledge and authority. In the early nineteenth century this process was given new impetus, as traditional social ties were severed through industrialization and urbanization and as the technologies of statistical surveying and aggregate mapping were applied to the population. From the quantitative representation of British subjects in the census and other statistical projects new kinds of social solidarity and identity were born, which largely overshadowed those of the local community.

Before states like Britain centralized the surveillance and control of their populations, people identified themselves differently. Not more simply, for identity had probably always entailed some overlaying of different elements such as gender, age and occupation. Instead, identity was different because it was shaped by more tangible references. A person would have identified with categories they could see in everyday relationships and activities: a person was a girl or woman like one's mother, aunts and baby sisters; or a cowherd like one's father, grandfather, uncles and neighbours. A person was of this village, as compared with the one over that hill. The categories created by the state were markedly more abstract: one belonged to a group of 6,783 people who were also born with a shrivelled arm; or to a group of 1.5 million who belonged to a certain denomination of Christianity, or to a newly titled subclass of labourers numbering 12,000.

One wonders how anyone without previous knowledge of such categories could suddenly find themselves identifying with them, as many British people apparently did in the mid nineteenth century. There are a few possible answers to this question. First, there is Althusser's

explanation, which is that this recognition is how ideology reproduces the relations of production in any given society. Through ideological state apparatuses, such as the church, family or the press, concrete individuals are constituted as subjects. That is, they are “interpellated”, or “hailed” “in such a way that the subject responds: ‘Yes, it really is me!’” because “it obtains from them the recognition that they really do occupy the place it (ideology) designates for them as theirs in the world, a fixed residence: ‘It really is me, I am here, a worker, a boss or a soldier!’”¹⁴⁴ Interpellation thus involves a mirror effect, whereby individuals recognize what is presented to them, the name (category, class) called to them, as their own. This process occurs without any awareness that it is occurring because the “peculiarity of ideology that it imposes (without appearing to do so,) obviousnesses as obviousnesses, which we cannot fail to recognize.” I do not think, as Althusser does, that “It is only from the point of view ...of the class struggle, that it is possible to explain the ideologies existing in a social formation.”¹⁴⁵ But I do find compelling his observation that the subject constituted by interpellation is a subject, both in the sense of a free agent who is responsible for his or her choices, and in the sense of “a subjected being, who submits to a higher authority.”¹⁴⁶ Thus the free subject submits to his or her subjection to the ideology or the classification, in the case we are discussing.

Hacking, meanwhile, looks at the phenomenon of people recognizing their classifications through a more philosophical lens. In “Making up People, he suggests that “numerous kinds of human beings and human acts come into being hand in hand with our invention of the categories

¹⁴⁴ Althusser, “Ideology and Ideological State Apparatuses, 107.

¹⁴⁵ Ibid, 110.

¹⁴⁶ Ibid, 108.

labeling them” through a process he calls *dynamic nominalism*.¹⁴⁷ He uses this term to distinguish it from a sort of “ideal type” or extreme of the nominalist position, which holds that ‘all categories, classes, and taxonomies are given by human beings rather than by nature and that these categories are essentially fixed throughout the several eras of humankind.’¹⁴⁸ In contrast, the notion that many (but not all) human identities, behaviours or conditions come into being at the same moment that they are named and classified, *dynamic nominalism*, recognizes that both the categories and identities change over time. We only have to look at some of the latest categories of identity entering public discourse today-whether biomedical, psychological, sexual or socio-economic- to get a sense of the simultaneity of newly created categories and the groups of people identifying with them, and how such categories and identities have changed over time.

149

Finally, I think we should also consider that when individuals identified with census categories it may have had something to do with the rising status and more widespread recognition of two relatively new expressions of knowledge: the print medium of newspapers

¹⁴⁷ Hacking, “Making up People”, 169-170.

¹⁴⁸ Ibid, 164-5. “The claim of dynamic nominalism is not that there was a kind of person who came increasingly to be recognized by bureaucrats or by students of human nature but rather that a kind of person came into being at the same time as the kind itself was being invented. In some cases, that is, our classifications and our classes conspire to emerge hand in hand, each egging the other on.”

¹⁴⁹ Hacking is not claiming that there is any “there is a general story to be told about making up people. Each category has its own history.” Instead, he suggests we may see the process as occurring along two different vectors: “One is the vector of labeling from above, from a community of experts who create a “reality” that some people make their own. Different from this is the vector of the autonomous behavior of the person so labeled, which presses from below, creating a reality every expert must face,” 168.

and statistical accounts of numerical “facts.” A greater number of people than ever before were consuming the information presented in broadsheets, including many of those who were illiterate, for they had publications read to them. When people were presented with statistical reports published in broadsheets they were likely convinced by both the authority of the medium –by publishing these facts the paper was guaranteeing their truth - and the purported objectivity of numbers themselves

The fact that many people in nineteenth century Britain identified with the categories newly created by statistics - and even used them as platforms from which to agitate for particular rights- does not negate their usefulness to the state in governing the population.¹⁵⁰ Indeed, this is how liberal governance works. As Foucault explained, it is the self-regulation of individual subjects, their willing conformity with norms that makes governing from a distance possible.¹⁵¹ Norms for every facet of the human life- medical, occupational, religious,

¹⁵⁰ According to Levitan, “people used the census not only to count, categorize and control others but also to count, categorize and claim rights for themselves. ... In the European context, the census helped not only in creating national identities but also in confirming and defining group identities within the nation, whether occupational, religious or regional.” Levitan, *A Culture History of the British Census*, 6. This more positive effect of the census on identity is often overlooked. Meanwhile, scholars have been more definitive about the role of statistics in facilitating social control, especially those engaged in analyzing social historical processes through the lens of Foucauldian governmentality, see Hacking, *The Taming of Chance*, 4; Nikolas Rose and Peter Miller in *Governing the Present: Administering Economic, Social and Personal Life* (New York, NY John Wiley & Sons, 2013) and “Political Power Beyond the State.”

¹⁵¹ Michel Foucault, “The Means of Correct Training” in “Discipline and Punish: The Birth of the Prison,” reproduced in *The Foucault Reader*, ed. Paul Rabinow (New York: Pantheon Books, 1984). Foucault explains that, “Like surveillance and with it, normalization becomes one of the great instruments of power at the end of the classical age. For the marks that once indicated status, privilege, and affiliation were increasingly replaced- or at least supplemented- by a whole range of degrees of normality indicating membership of a homogenous social body, but also playing a part in classification, hierarchization, and the distribution of rank. In a sense, the power of normalization imposes homogeneity; but it individualizes by making it possible to measure gaps, to determine levels, to fix specialities, and

educational, sexual and so on- were produced and formalized in the averages presented in the census and other official statistics.¹⁵² These functioned as reference points guiding the behaviour and situating the identity of individuals within society. The government itself was the intended beneficiary of this orienteering function: mapping and measuring the population would prevent political leaders from “legislating in the dark,” and allow them to chart the progress of the nation and to identify any threats to the social order. Once these “maps” of the population were publicized, however, their usefulness in orienting the behaviour of individuals and propagating a shared national identity became obvious. Such uses were often not recognized until after technologies such as the census were deployed. As the author of the ‘Results of the Census of 1851’ noted, for instance, although the first U.S census, in 1790, was instituted with the aim of managing the electorate, “it was soon found, by a self-governing people, that a census ought to be a thorough survey and record of society, by which every sort of social experience might be embodied for social guidance.”¹⁵³

Meanwhile, regional, class and cultural distances disappeared before the image of the aggregate: the nation, in whose average quantities each member was counted.¹⁵⁴ Aggregation

to render differences useful by fitting them one to another. It is easy to understand how the power of the norm functions within a system of formal equality, since within a homogeneity that is the rule, the norm introduces as a useful imperative and as a result of measurement, all the shading of individual differences.” 196-197.

¹⁵² On the relationship between statistics, norms and governmentality see Nikolas Rose, “Governing ‘Advanced’ Liberal Democracies.” in *The Anthropology of the State: A Reader*, ed. Aradhana Sharma, Akhil Gupta, ed. 144-162 (Oxford: Blackwell, 2006), 145-146.

¹⁵³ “The Results of the Census in 1851,” *The Westminster and Foreign Quarterly Review*, 61 (April, 1854) <https://books.google.ca/books?id=DXkVAQAIAAJ>, 344. The author is unnamed.

¹⁵⁴ The same, unnamed author quoted above, waxing lyrical for 2 pages, describes how every sort of person in the kingdom was apprehended by the census on the night of march 31st

consolidated the population, and this numerical inclusion in the statistical table of the nation created a new kind of solidarity and social harmony in what was becoming an ever more individualistic society.¹⁵⁵ But this was a homogenizing kind of belonging, originating in abstraction. According to Poovey, modern abstraction “tends to generate norms that are typically defined as such by numerical calculation” and involves the “imposition of a conceptual grid that enables every phenomenon to be compared, differentiated and measured by the same yardstick.”¹⁵⁶ Like the Euclidean rationalization of space manifested in the mapping of estates and national territories, statistical representation rearranged the social boundaries of belonging, situating and measuring every individual against the same standard.¹⁵⁷

1851: ‘every thimble-rigger, and fortune teller and beggar was brought into that night’s assemblage, with statesmen, divinity, law and physic- with the richest of pensioners, and the proudest of sinecurists. If sleep is, as is said, the great leveller, surely a census is the only loadstone which agglomerates us all, leaving no stray particle to be lost,’ 345-7.

¹⁵⁵ Levitan, *A Culture History of the British Census*, 9-10.

¹⁵⁶ Poovey, *The Making of the Social Body*, 9. Poovey sees this numerical representation of the population as having laid the foundations for twentieth century mass culture. According to Poovey modern abstraction became dominant in the late eighteenth century and can be characterized by three key developments: the above mentioned production of norms through numerical representation, “instantiation”, wherein concrete phenomena are institutionalized through “codified practices that are confirmed and then naturalized through ...social relations”; and the process of “vivification” which I will discuss below. For their seminal critique of “mass culture” see Theodore Adorno and Max Horkheimer (1944), “The Culture Industry: Enlightenment as Mass Deception,” in *Dialectics of Enlightenment*, ed. Theodore Adorno and Max Horkheimer; trans. John Cumming *New York: Herder and Herder, 1972).

¹⁵⁷ As I explained in chapter two, scientific mapping is the application of geometrical and mathematical principles to the representation of space. Influenced by Euclid, the rationalization of space meant applying a standardized grid upon it- seeing it as "uniform and continuous." See J.B. Harley, “Silences and Secrecy: The Hidden Agenda of Cartography in Early Modern Europe,” *Imago Mundi*, 40 (1988): 65 and Jeremy Brotton, *A History of the World in Twelve Maps* (Toronto: Allen Lane, 2012), 37-8.

Even as subjects were bound together by aggregate data, they were fragmented into ever more discrete categories by the classificatory order structuring statistical knowledge. Individuals found themselves belonging not just to the national aggregate but also to a number of “overlapping identity groups that operated as fractions of the aggregate; each individual was a member of an age group, a gender group, a regional group, an occupational group and a religious group, for example.”¹⁵⁸ This social differentiation became so complex that the importance of what had once been a crucial marker of identity- local community- was diminished. By the 1850s and 60s, a transition was underway in which people began to identify less with particular, concrete phenomena and more with the abstract categories constituted by statistical knowledge. In the case of the census, Levitan explains,

By de-emphasizing geographic communities the census essentially defined the nation as the primary locus of identification and analysis and weighted each individual within that nation equally and anonymously. This meant that most of the aggregates to which individuals belonged were not located anywhere other than the nation, an abstract rather than a geographical location...the census, after 1841, rather than pinning individuals down, extracted them from their local communities into various nationally based demographic groups”¹⁵⁹

If the local, geographical basis of identity was diminished by the statistical “map” of the nation, the historical and epistemological process that went into making such maps was entirely obscured behind their presentation as “facts.” Bruce Curtis has described this phenomenon in his work on the politics of the census: “statistical objects and practices are ‘blackboxed’; that is, their dependence on particular investigative modalities ceases to be visible. Objects and practices that emerge out of the world of classification, codification and theoretical formation come to be

¹⁵⁸ Levitan, *A Culture History of the British Census*, 6.

¹⁵⁹ *Ibid*, 29.

taken as commonsensical elements of the scientific or administrative domain.”¹⁶⁰ Because statistical representations tend to appear as always already complete, the disputes, judgements, decisions and omissions behind their creation are never registered by the wider public. The facts and categories produced by statistics are thus generally received as legitimate truths, and like the commodity form described by Marx, they are perceived as things themselves, rather than mere representations of things. This is the process Mary Poovey calls “vivification”, a hallmark of modern abstraction. Whether it takes the form of reification, commodification or fetishization, vivification involves the occlusion of relations, practices and histories behind representations. Thus, while people began to identify themselves with the demographic aggregates that represented them statistically they were seldom aware that such categories were designed as instruments of liberal governance.

Statistical aggregation and categorization created the “administrative and political spaces of equivalence” that Desrosières identifies as the precondition for social objectification.¹⁶¹ When joined with efforts to overcome uncertainty through probabilistic thought, such spaces of equivalence made it possible to manipulate the realm of “the social” through the self-governance of individuals, who compared their own behaviors and identities with that of the average man. This is essentially the same phenomenon that Foucault identified when he wrote about “normalization.” That is, he saw people’s identification with abstract categories as a new mode of the disciplinary power. When subjects learn what the standard characteristics and behaviours of “their” category are, they begin to regulate their own behavior in order to conform to the

¹⁶⁰ Bruce Curtis, *The Politics of Population: State Formation, Statistics, and the Census of Canada, 1840-1875* (Toronto: University of Toronto Press, 2002), 308.

¹⁶¹ Desrosières, *The Politics of Large Numbers*, 9-12.

norm.¹⁶² It is ultimately through this self-regulation of individuals that the census and statistics facilitated effective control over a large and fragmented population from a distance.

But some categories of the population were less “equal” than others: Curtis notes, for example, that while a census “group(s) subjects together to form a population” certain elements within that population “may then be selectively *disaggregated* and made the objects of social policy and projects.”¹⁶³ As Hacking points out, in Britain, as in other European countries in the nineteenth century, these elements – the disaggregated objects of reform- were almost always comprised of “deviant” subpopulations, such as criminals, the poor and the mad.¹⁶⁴ It is in reference to such groups that James Vernon remarks that “for much of the 19th century “the social” had been the dustbin of liberalism, where those unable to improve themselves, or to be improved, had been subjected- the arena where difficult but discrete problems ... were consigned for scrutiny and disciplinary regulation.”¹⁶⁵ These efforts to enclose and improve the social realm mirrored efforts that had been directed at land in the previous century.

¹⁶² While the concepts of normalization and disciplinary power run through much of Foucault’s work, they were more explicitly the subject of *Discipline and Punish* and *The History of Sexuality*. See Michel Foucault, *Discipline and Punish: the Birth of the Prison*, trans. by Alan Sheridan (New York: Random House, 1977); and *The History of Sexuality, Volume I: An Introduction*, translated by Robert Hurley (New York: Vintage, 1990).

¹⁶³ Curtis, *The Politics of Population*, 3.

¹⁶⁴ Hacking, *The Taming of Chance*, 3.

¹⁶⁵ James Vernon, “The Ethics of Hunger and the Assembly of Society: The Techno-Politics of the School Meal in Modern Britain,” *The American Historical Review* 110, no. 3 (2005): 695. Vernon explains that in the latter half of the nineteenth century the idea of “the social” “was reconceptualised as a system, the connective tissue between economics and politics that would enable the stability of those domains to be maintained... leading intellectuals and politicians of the age, posited the social as the key domain for the government of modernity”

But some of the key demographic categories inscribed by nineteenth century statistics did not serve the ends of liberal governance as much as they did the profits of industry. The insurance industry was particularly influential in the development of the first official statistics in early nineteenth century Britain. For example, because life expectancy was central to calculations of annuities and life insurance policies, the industry was in need of statistics that divided the population into age groups. In the years leading up to the censuses of 1821 and 1831, the industry lobbied Parliament for the inclusion of age as a key category in the census. Because John Rickman, the chief administrator of the census, was intent on keeping the census questionnaire as simple as possible, he only partially relented, by dividing males only into those under and those over the age of 20. But after the statistical movement of the 1830s and the creation of the General Register Office, the needs of insurers were addressed in censuses which subdivided the population into more detailed categories of age and occupation.¹⁶⁶

Hungry for “large numbers” and the patterns that they revealed, the industry and science of insurance played a pioneering role in the development of statistical knowledge, and in techniques for governing populations at a distance. Thus before exploring in more detail the ordering imperative at work in the state’s classification of the British population in the nineteenth century, I wish first to recount the development of actuarial science and the classification of risks practiced by the insurance industry in the nineteenth century.

¹⁶⁶ Levitan, *A Culture History of the British Census*, 20-21

Developments in Nineteenth Century Insurance

Actuarialism

The fusion of probabilistic thought and statistical “spaces of equivalence” made it possible not only to map the terrain of the social, but also to project that map onto multiple imagined futures. Conceiving of society as an objective phenomenon in itself, rather than as an abstract aggregation of individual phenomena, and conceiving of the future as knowable and mutable, had massive implications for how populations were governed and for the identity and behaviour of the governed themselves. But it was equally and simultaneously transformative for the burgeoning industry of insurance. As I have recounted above, insurance only began to develop into a scientific and profit-orientated practice in the latter decades of the eighteenth century. Learning from the failures of so many schemes that came before them, insurers saw that in order to remain solvent while covering the risks of their policy holders they needed a better way of assessing the probability of those risks. For life insurance providers, what was needed was “large numbers” showing the patterns of mortality, so that policy rates could be set according to the most accurate estimates of life expectancy at different ages. In the late eighteenth and early nineteenth centuries, British life assurance companies depended almost exclusively on just two sets of mortality data: the Northampton and the Carlisle life tables.

In Britain, it was the Equitable life assurance company which first employed actuarial methods. Founded by mathematician William Morgan in 1762, Equitable began by setting its premiums according to data from the London Bills of Mortality. Then, in 1780, it began to use a life table compiled by Richard Price which presented the data on 4,689 deaths from 1735 to 1780 in Northampton. For decades Price’s “Northampton table” was the most widely used life table in

Britain, informing the actuarial practices of many other life insurance companies.¹⁶⁷ The popularity of the Northampton table was unrivalled until 1815, when Sun Life's actuary Joshua Milne published a new life table based on mortality data from Carlisle from 1779 to 1787. By the 1830s the Carlisle table had surpassed the Northampton table as the most relied upon set of data for mortality rates, for its data were more recent and it corresponded more closely with the actual experiences of the life insurance companies.

But neither of these tables were without problems. Neither of them had very recent data, and they both drew on regional rather than national data. One would think that, once the GRO had been established, life assurance companies would draw on the published records of the nation's registered deaths in order to determine their policy rates. While they did make some use of the GRO's statistics, the problem was that life assurance companies needed mortality data more directly reflective of the lives they selected for coverage: healthy middle class males. After all, this was the sector of the population which had both the financial means and the will to purchase policies, while also having less exposure to environmental risks that would shorten their lives. That is, the gentry still had the institution of inheritance to protect them in the future, while the working classes, besides being unlikely to afford the policies, lived riskier (thus shorter) lives. It wasn't until much later in the century that insurers recognized the untapped potential of working class

¹⁶⁷Steven Haberman, "Landmarks in the History of Actuarial Science (up to 1919)," *Actuarial Research Paper, no. 84. Faculty of Actuarial Science & Insurance* (London: City University London, 1996): 1, <http://openaccess.city.ac.uk/2228/>, 15; and Timothy Alborn, *Regulating Lives: Life insurance and British society, 1800-1914*, (Toronto: University of Toronto Press, 2009), 105-107. Alborn notes that the reason that Richard Price drew on data from Northampton, and not London, was because its populace was considered far healthier than that of London, and thus would provide more appropriate data for setting premiums on the lives of Equitable's policy-holders, who were selected for their relative healthiness.

lives, and it was much later still when women were seen as potential policy holders and not merely the beneficiaries of life insurance.¹⁶⁸

The selection of “healthy” lives was deemed necessary to the very survival of a life insurance office. As Porter explains, from the perspective of early Victorian life insurers,

A society that admitted all applicants would soon have a membership made up overwhelmingly of the sick and dying, which would be fatal to the company as well as its membership. Even if there were general “laws of mortality,” a matter of controversy among the actuaries, they provided no adequate basis for the institution of life insurance. Nineteenth-century actuaries recognized that their work required creating a domain of artificial order. This they aimed to accomplish mainly through the skillful selection of lives.¹⁶⁹

To this end, in 1837, life assurance companies hit upon a strategy for accessing the particular set of large numbers they needed. They would create a new life table, tailored to the needs of their industry, by pooling their collective records. This would not have been possible a generation earlier, for the number of insurance companies had grown exponentially, from five London based companies in 1800, to 90 across Britain by 1840.¹⁷⁰ By 1843 a new life table was created by pooling together the records of seventeen different life insurance companies. The unimaginatively named “Seventeen Life Assurance Offices Table” gave actuaries the advantage of even larger numbers, based on their pooled experiences of their target market.¹⁷¹ From this data actuaries could compare the mortality rates of this particular section of the population with those of the general population, and create subdivisions within this group so that policies and liabilities could be more accurately determined. Later the pool of contributing life offices expanded to

¹⁶⁸ Alborn, *Regulating Lives*, 9.

¹⁶⁹ Porter, *Trust in Numbers*, 39.

¹⁷⁰ Alborn, *Regulating Lives*, 4.

¹⁷¹ *Ibid*, 103-4 and Haberman, *Landmarks in the History of Actuarial Science*, 37-8.

include 20 companies, who produced a “Healthy Males” table that charted the age-specific mortality of more than 130,000 men whom doctors had deemed to be sufficiently average to pay standard premiums for their life insurance”¹⁷²

Classifying Risks: Selecting Lives

With the more detailed and accurate data provided by these new tables, actuaries for life assurance companies were now able to refine their classifications of the policy holder’s according to their risks.¹⁷³ In the first half of the century the selection of lives had been extremely simple: applicants were either accepted or, if there was reason to suspect poor health, rejected. Usually this distinction was determined by a medical reference supplied by the applicant, or by an examination by the company’s own medical officer.¹⁷⁴ But with the pool of healthy applicants being spread amongst ever more competitors after the passing of the Joint Stock Companies Act of 1844, Life assurance companies were pressured to use more sophisticated means of selection.¹⁷⁵ What was needed, as

¹⁷² Timothy Alborn, “Normal Bodies, Normal Prices: Interdisciplinarity in Victorian Life Insurance,” *RAVON Romanticism and Victorianism on the Net*, 49 (Feb, 2008): 9. Meanwhile outside of the life insurance industry, data were being pooled at the national level by the GRO. In 1843 a national life table, “English life table number 1” was created, while under the guidance of physician and ‘Compiler of Abstracts’ William Farr, vital statistics were being collected on mortality and sickness.

¹⁷³ Charles L. Trowbridge, *Fundamental Concepts in Actuarial Science* (Actuarial Education & Research Fund, 1989), 55.

¹⁷⁴ Porter, *Trust in Numbers*, 40.

¹⁷⁵ According to Ian Klaus, this Act was instrumental in the growth of the insurance industry in the mid-nineteenth century because it allowed companies “to incorporate as joint stocks without a royal charter or act of Parliament.” Thereafter it was much easier for new insurance companies to enter the market. See Ian Klaus, *Forging Capitalism: Rogues, Swindlers, Frauds and the Rise of Modern Finance* (New Haven & London: Yale University Press, 2014), 134. Insurers were also motivated to refine their selection process in order to counteract the phenomenon of adverse selection, which Baker defines as the “tendency for low risk individuals

Trowbridge explains, was to sort clients into homogeneous risk groups, so that in each grouping, the appropriate risk level could be calculated and distributed among the pool.¹⁷⁶

It thus became the practice to sort prospective clients into one of several different classes. In the “first class” were the healthiest; in the second, those of “average” health; next there was a “doubtful” class and finally a “rejected” or “inferior class.” The further down this hierarchy clients found themselves, the higher the premiums they were expected to pay. Still, life assurance actuaries focused the bulk of their attention on the healthiest class.¹⁷⁷ Alborn cites, for example, an 1872 account of the experiences of ten Scottish assurance companies up to 1863, in which a small percentage of those applying for coverage were turned away: 7% were classed as “under-average” and a further 10%, who were women, were assigned their own high risk category. The remaining majority were “average” and paid premiums at a standard rate.¹⁷⁸

While this sort of risk classification is nowhere near as complex as the processes used by today’s insurance companies, such examples do reveal a clear shift towards more precise calculations in the industry in the second half of the nineteenth century. This was not only due to problems like adverse selection and the growing competition in industry itself, but also to the

to avoid or drop out of voluntary insurance pools, with the result that, absent countervailing efforts by administrators, insurance pools can be expected to contain a disproportionate percentage of high -risk individuals”. For more on Adverse selection and its role in insurance systems of risk classification see Tom Baker, “Containing the Promise of Insurance: Adverse Selection and Risk Classification” in *Risk and Morality*, ed. Richard V. Ericson, Aaron Doyle (Toronto: University of Toronto Press, 2003), 260.

¹⁷⁶ Trowbridge, *Fundamental Concepts in Actuarial Science*, 53-4.

¹⁷⁷ Alborn, “Normal Bodies,” 7-8.

¹⁷⁸ *Ibis*, 9.

professionalization of actuarial science and intensified efforts to oversee the industry on the part of the government.

Actuaries Professionalize, the Governmental Scrutinizes

As the industry of insurance grew the knowledge on which it was founded became ever more defined and regulated. In the early nineteenth century actuaries had simply been trained mathematicians, who applied their knowledge to the field of insurance. But with the expansion of life insurance in the mid-nineteenth century, actuarialism became a specialized profession, requiring certification with either the Institute of Actuaries, established in 1848, or with the Faculty of Actuaries, established in Edinburgh in 1856.¹⁷⁹ In time, the industry's efforts to pool knowledge specific to its needs, and to guard and elevate the calculative expertise of actuaries would help to establish its legitimacy.

But the old association of life insurance with speculative gambling, as well as fraudulence, amateurism and insolvency lingered for some time. It did so with good reason, for shady practices were common enough during this turbulent period in the life insurance industry.¹⁸⁰ In fact, it seems that of the many insurance schemes which had registered as companies after the Joint Stock Companies Act of 1844, only a minority survived beyond ten years. According to Klaus, in the first seven years after the Act was passed, 78 out of 131 new insurance companies failed.¹⁸¹ Buhlman's figures for the first nine years after the Act was passed are even more dramatic:

¹⁷⁹ Haberman, *Landmarks in the History of Actuarial Science*, 4; and Alborn, "Normal Bodies," 6.

¹⁸⁰ Haberman, 23; and James Hickman, "History of the Actuarial Profession, *Encyclopedia of Actuarial Science*, 2 (2002): 1-7, 1.

¹⁸¹ Klaus, *Forging Capitalism*, 134.

“between 1844 and 1853 in Great Britain, 335 new insurance companies were planned, 149 were actually formed and a total of 59 survived this period.” Such a failure rate, Buhlmann notes, stemmed from the absence of a “proven base for premium calculations” in many companies in this period. Such a state of affairs “called for legislative measures to protect the insured.”¹⁸² For every company that failed, scores-possibly even hundreds or thousands- of policyholders would lose their invested premiums, leaving them that much closer to reliance on government aid.

As I will discuss at length below, the deterrent policies of the New Poor Law had been enacted in 1844, in order to reduce such pressure on poor rates. However, this new system would take decades to get off the ground, and anyway, the government was keen to stem the flow of poverty at every source. If actuarial techniques could be proven to increase the effectiveness and ensure the security of insurance schemes, then the government would eagerly encourage such private vehicles for the financial security of the population. For this reason, after the mid nineteenth century a series of parliamentary select committees held inquiries into life assurance practices and actuarial techniques. As Porter has demonstrated, the government had hoped to find a way to standardize actuarial knowledge. However, such hopes were frustrated by the actuaries themselves, who insisted that their knowledge- though of a highly quantitative nature- involved expert judgement and experience that could not be reproduced.

Friendly Societies

If governments in nineteenth century Britain were concerned about the soundness of life assurance practices, they were equally interested in monitoring the practices of “friendly societies” which

¹⁸² Hans Buhlmann, “The Actuary: the Role and Limitations of the Profession since the mid-nineteenth Century,” *ASTIN Bulletin* 27, no.2 (1997): 166.

had begun to proliferate in response to the insecurities of the industrial period.¹⁸³ Friendly societies were not unlike insurance schemes, in that members made regular payments into a fund from which benefits were dispersed when necessary. However, they functioned purely on the principle of mutuality, so that when faced with incidents of sickness, old age or burial costs each member could turn to the fund.¹⁸⁴ Unlike commercial insurers, who were selective about what risks they took on, friendly societies didn't discriminate, even on the basis of age: young and old paid the same contribution. Nor did these mutual associations invest their funds in order to accumulate a surplus, for they were not profit making enterprises.

Governments were rather ambivalent in their attitudes towards friendly societies. As a form of financial security organized by the working classes themselves, friendly societies benefited the state to the extent that they kept many of the poorer classes of society "off the funds." Because of this, and in order to foster in the working classes the qualities of thrift, foresight, self-discipline and self-help, administrations in the early nineteenth century actively promoted these associations. The friendly society was viewed as one of many vehicles for socializing and improving the working class in order to facilitate their admission into proper society (an admission that would be, in the words of Knights and Vurdubakis, "protracted, sponsored, conditional and incomplete.")

¹⁸⁵ But working class initiative was double sided. Since any sort of association among this class was eyed with suspicion friendly societies could be viewed as a potential breeding ground for

¹⁸³ Haberman, *Landmarks in the History of Actuarial Science*, 35. For a discussion of the fraternal and benevolent organizations formed by skilled artisan guilds in the late eighteenth century see Pat O'Malley, *Risk, Uncertainty and Government* (Abingdon, UK: Routledge-Cavendish, 2012) 4.

¹⁸⁴ Haberman, *Landmarks in the History of Actuarial Science*, 35.

¹⁸⁵ Knights and Vurdubakis, "Calculations of Risk," 745-6.

“combinations” or even revolutionary activities. Meanwhile, because they were not intent on ensuring a surplus, and did not adjust the contributions of members according to their health, age and other risk facts, friendly societies were that much more prone to insolvency, ultimately putting pressure back on the poor rates.

One solution, attempted in the 1820s, was to require friendly societies to submit to certain amount of actuarial supervision. However, as Porter notes, actuarial science at this point had not been professionalized, and anyone could have claimed to be an actuary.¹⁸⁶ It wasn't until after the Institute for Actuaries had been formed in 1848 that some level of governmental control over the workings of friendly societies could be tried in earnest. In a series of Parliamentary Select Committees inquiring into insurance matters the government sought the alliance of actuaries in standardizing their science so that this standard could be legislated for insurance companies and friendly societies alike. As I noted above, Porter has demonstrated how reluctant actuaries were about such an alliance, for they were protective of their professional knowledge and refused to reduce it to quantitative formulae for the benefit of the government. Nevertheless, Parliament did settle on a few methods for reforming friendly societies, and created legislation that “encouraged them to replace their traditional emphasis on fraternalism and benevolence with actuarially based principles of fund management.”¹⁸⁷ Two major reforms that were introduced were the requirement that members in friendly societies pay contributions according to their risk classification, and that each society hire full time collectors to ensure the regularity of payments and keep an eye on

¹⁸⁶ O'Malley, *Risk, Uncertainty and Government*, 5, Porter, *Trust in Numbers*, 110.

¹⁸⁷ O'Malley, *Risk, Uncertainty and Government*, 5.

contributors' financial behaviour and any changes in his or her risk profile. By these means a new disciplinary regime had been ushered into the government of working class security."¹⁸⁸

Industrial Life Insurance

By the 1850s and 60s Insurance companies began to recognize an untapped market in the large number of unskilled labourers who could not afford traditional life insurance and who did not belong to the trade guilds from which most friendly societies were formed. Catering to this market also meant imposing upon them a disciplinary regime that would counteract their known habits of intemperance and improvidence. Much of this regime centered on the weekly visit of the rate collector. A large lump sum to be paid on an annual basis was not thought feasible for a class that had little in the way of savings. Instead, a smaller fee could be collected by an agent of the company each week, before the family's weekly earnings could be spent.¹⁸⁹ Not only did this have the advantage of making life insurance appear affordable to the working classes, but it also allowed agents to keep an eye on the physical and financial health of each client. New furnishings in the home, for example, would indicate to the agent that the client might be persuaded to invest in a better policy. Conversely, the sudden absence of belongings in the home might indicate that the client had pawned them. Such signals of financial distress, as well as evidence of ill health, alerted the agent to the possibility that the client was a bad risk.¹⁹⁰ Agents also urged clients to forego spending on more immediate or compelling desires and to focus instead on building a secure future

¹⁸⁸ Ibid, 5.

¹⁸⁹ Ibid, 6; and Porter, *Trust in Numbers*, 103.

¹⁹⁰ O'Malley, *Risk, Uncertainty and Government*, 6-7.

for their families. Industrial life insurers saw themselves as providing a “necessary discipline of thrift” in the working classes, and “educating people about the need to insure for the future.”¹⁹¹

Insurers as Investors

The growth of the insurance industry in the second half of the nineteenth century wasn't limited to its expansion into new regions and new markets. Insurance companies were also becoming important participants in the financial sector, with ever more sophisticated investment portfolios earning them interest on the funds gathered from policy holders. Of course insurance and investment were the twin engines that had stimulated the development of the London stock market in the late seventeenth century and early eighteenth centuries. And as insurance schemes proliferated over the next century and a half it was not uncommon for insurers to invest the funds of their subscribers in various projects and types of loans.¹⁹² By the mid nineteenth century, however, the industry had become much more competitive and insurance companies felt an even greater pressure to accumulate capital to survive.¹⁹³

Life assurance companies were by far the most active investors among insurers, in part because unlike fire, property or maritime insurance, reference to mortality data allowed them to

¹⁹¹ Ibid, 7. Others saw them more critically. While visiting agents were able to keep a close eye on clients, the manpower involved in this approach was enormous and expensive- the cost of their labour ate into the companies' profits and into the value of policies themselves. More disturbing to observers in the government, was that agents were encouraged to oversell to clients, a practice that often ended in clients cancelling their policies when they could not keep up with increased payments.

¹⁹² Alborn, “Normal Bodies,” 166.

¹⁹³ Klaus, *Forging Capitalism*, footnote 72.

approximate the period in which claims would come due.¹⁹⁴ Earlier in the century life insurance companies accumulated capital by lending to the government and to landowners at high rates of interest. By the mid-century municipal bonds for public works had become a popular avenue for investment and after 1870 insurers invested primarily in what had become a greatly diversified and globalized stock market.¹⁹⁵ In the second half of the nineteenth century life insurance had become one of “Britain’s biggest institutional investors,” drawing the attention of commentators like William Farr, who singled out the life assurance office as “a Company of Capitalists constantly looking out for long investments, and well organized, to deal profitably in securities at some greater risk than those returning 3 per cent interest”¹⁹⁶

Of course, life offices were themselves the depository of capital invested by millions of policy holders across Britain. That this was a wise, prudent and safe way to invest one’s savings was a key refrain in the industry’s marketing literature. Even the names of the life assurance companies underscored this point: Prudential, The Rock and the Provident, and Refuge, The Reliance Mutual, the Guardian. Whether it was aimed at the middle class or the working class, the marketing of life assurance worked upon powerful emotions and social norms to convince prospective clients that this product was indispensable, a panacea that could allay the fear of leaving one’s family destitute in the future, while granting one’s desires for propriety and respectability. Above all, the industry’s promotional material aimed to persuade the public that it

¹⁹⁴ Alborn, “Normal Bodies,” 166. Alborn reminds us that the greater speculative activity of life assurance companies explains why it was singled out for its similarity to gambling in the eighteenth century.

¹⁹⁵ Ibid, 169.

¹⁹⁶ Quoted in Alborn, “Normal Bodies,” 167.

was an individual's duty to society to insure the future security of his (or occasionally her) family.¹⁹⁷ Such moral and emotional appeals were made in tandem with an emphasis on the scientific and disinterested nature of the actuarial calculations by which premiums were set.

At least as persuasive as these arguments was the use of monetary incentives to invest in life insurance. As the nineteenth century unfolded it became ever more common for life insurers to offer bonuses to clients on a periodic basis, in the form of a reversionary payment, cash, or reduced premiums.¹⁹⁸ For the insurer, the reversionary payment was the ideal option, for the company "could declare a substantial bonus without sacrificing its ability to make long-term investments."¹⁹⁹

Alborn argues that by "publiciz(ing) money's reproductive powers" life insurance companies were crucial in fostering the habit of investment amongst the public. Indeed, by the late nineteenth century the British people were investing a huge amount of capital into life insurance alone. From this period to the early twentieth century, the proportion of capital invested in the life insurance industry as compared with banks and other industries grew exponentially: "In 1880 British life offices boasted £150m in invested capital compared with £470m in bank deposits; by 1914 their assets stood at £530m, compared with £1,150m held by commercial banks, £256m by

¹⁹⁷ Liz McFall, "Prudentialism and the 'Missionaries' of Life Assurance," *CRESC Working Papers*, 32 (2007): 10-12.

¹⁹⁸ Alborn, "Normal Bodies," 179-180. The bonus had originated in the late eighteenth century when the directors of Equitable discovered an unexpectedly high surplus in their fund, owing to premiums having been set at an inaccurately high rate. They decided to redistribute a portion of this surplus to the policy holders. In time, as the idea of the bonus became a selling point for the company, competing life assurance offices began to offer it too.

¹⁹⁹ *Ibid*, 176.

savings banks, £120m by building and friendly societies, and £90m by trust companies.”²⁰⁰ In Britain, and to a lesser extent in continental Europe and America, the late nineteenth century marked the genesis of insurance as a driving force in financial markets and in national and global capitalist economies.

The State’s Classification and Management of Risks

Both insurance companies and the state used aggregate data in order to classify populations and to select certain classes as objects of calculation. But where the insurance industry in the mid-nineteenth century sought the custom of the least risky class, the state’s attention was focused on those classes it considered most risky. This reversal of logic stemmed from the diverging objectives of the insurance industry and the state. The calculations of insurers aimed to safeguard the profit and survival of their enterprises in a competitive industry. They had no obligation to concern themselves with portions of the population which did not further these causes. The state, though similarly concerned with long term solvency of the nation in a competitive international environment, could not simply ignore the sectors of its population considered unproductive or destabilizing. For the health and stability of the population as a whole, the infected portion of the social body had either to be healed or excised. There were, as Foucault and others have demonstrated, a number of social categories in Victorian England which were deemed high risk, both for themselves and for the nation as a whole. Prostitutes, criminals, the insane, or the disabled were all targeted for special intervention and isolated from the larger populace.²⁰¹ But no category

²⁰⁰ Ibid, 167.

²⁰¹ For Foucault’s analysis of the treatment of the “insane” see Michel Foucault, (1971) *Madness and Civilization: a History of Insanity in the Age of Reason* (London: Routledge, 2003); of the sick: *The Birth of The Clinic: An Archeology of the Human Sciences* (New York: Vintage,

was as large or as disquieting to the ruling class as the poor and no intervention was as extensive or as central to the embedding of capitalist relations as the New Poor Laws of 1834.

Though I have so far in this book discussed what I think are some key logics of modernity in a roughly chronological order, focusing first on surveying and mapping, then enclosure and improvement and now risk and insurance, I hope I have made clear their interactivity. They do not strictly follow upon one another with one leaving off for the other to replace it. With the New Poor Law we can see each of those logics acting upon the same object: the surveying and mapping of the population through statistical representation; the enclosure of that population into separate categories; and the targeting of the poor and their classification either as paupers, a waste category to be contained, or as propertyless labourers, a risk class to be managed and improved.

The New Poor Law: Managing the Risk of Pauperism

I follow Polanyi and others in viewing the New Poor Law as a defining moment in modern capitalism, for it was an attempt to subsume the social realm within the logic of the market.²⁰² But it is equally important as an illustration of modernity's compulsive- because unattainable- pursuit of both order and growth, of both stability and forward movement. The "self-regulating" market is an enduring example of the kind of order or foundation created by modernity: based on the freedom of individuals to pursue their self-interest, it succeeds in producing growth, but at the cost

1973); of criminals: *Discipline and Punish: The Birth of the Prison* (New York: Vintage, 2012). For a comprehensive selection of his writings please see *The Foucault Reader*, ed. Paul Rabinow, (Pantheon Book: New York, 1984).

²⁰² Polanyi, *The Great Transformation*. Also see Ellen Meiskins Wood, *The Origin of Capitalism: A Longer View* (London: Verso, 2003) and David Englander, *Poverty and Poor Law Reform in Britain: From Chadwick to Booth, 1834-1914* (New York: Addison Wesley Longman, 1998). For a more recent discussion of the topic see Anne O'Connell, "Building Their Readiness for Economic 'Freedom': The New Poor Law and Emancipation" *The Journal of Sociology and Social Welfare* 36, no.2 (2009): 85.

of greater uncertainty, instability and risk. Instead of supporting the society, this foundation requires continual repair and social rearrangement in order to support it. The New Poor Law was the first major effort to rearrange social relations to support the unstable foundation of the capitalist market.

Of course this was not how the problem was viewed in the early nineteenth century (or how it is viewed today, for that matter). Rather, the market was largely understood to follow natural laws as orderly and immutable as those governing the natural sciences.²⁰³ The persistence of poverty was in stark contradiction with the harmonious and ordered world envisioned and aspired to by political economists and social reformers. The poor may have always been with them, but the late eighteenth century production of ever more paupers with no means of sustaining themselves was a result of the instability of capitalism and the creation of a class of propertyless labourers entirely dependent upon their wages. But again, contemporaries saw the problem as stemming not from the system that exposed this class to risk but from the riskiness of the class itself.

Early nineteenth century political economic theory, from Malthus to the architects of the New Poor Law, had been shaped in response to the agricultural crisis of the 1790s. At that time a combination of factors- declining demand for labour, falling wages and rising food prices- produced a surge in the number of people in need of aid. In response, a system of “outdoor” relief

²⁰³ See for example, J.W. F. Herschel, (1830) *Preliminary Discourse on the Study of Natural Philosophy* (Chicago, Chicago University Press, 1987), 72–73; George Poulett Scrope, (1833) *Principles of Political Economy, Deduced from the Natural Laws of Social Welfare and Applied to the Present State of Britain* (New York: A.M. Kelley, 1969), 39, 200; Adam Smith, (1776) *The Nature and Causes of the Wealth of Nations*, Edited by Edwin Cannan. With a Preface by George J. Stigler (Chicago, Chicago University Press, 1977).

(later known as the Speenhamland system) was devised in which allowances were given to those without work and compensation given to labourers who could no longer subsist on their wages.²⁰⁴ The severity of the crisis was such that this form of aid did little to reduce the numbers of paupers. In fact, to some observers, such as Malthus, the Speenhamland approach to poor relief only exacerbated the crisis by interfering in the laws of supply and demand. By artificially propping up wages, real wages were depressed further; by feeding families who would otherwise have starved, there were ever more pauper mouths to be fed. Malthus thus called for the complete dismantlement of the poor laws, so that the natural forces of the market could be restored.²⁰⁵

In the decades following the crisis this analysis of poor relief became a widely accepted tenet of political economic thought. While few others wanted to go as far as Malthus, most agreed that the existing poor law system needed to be amended. The lessons learned from the crisis of 1790s were not about the instability of the market or the particular vulnerability of wage labourers to such instability. Instead, it was understood that government interference in the form of poor relief imbalanced the natural laws of the market;²⁰⁶ that only hunger could prod the poor towards productive labour and that if any aid were given at all it should not be “outdoors”- unconditional-

²⁰⁴ Polanyi, *The Great Transformation*, 81-89.

²⁰⁵ Polanyi, *The Great Transformation*, 87. Thomas Robert Malthus, *An Essay on the Principle of Population, as it Affects the Future Improvement of Society, with Remarks on the Speculations of Mr. Godwin, M. Condorcet, and Other Writers* (London: Johnson, 1798; New Jersey: The Lawbook Exchange, Ltd., 2007), 30.

²⁰⁶ Peter Dunkley, “Whigs and Paupers: The Reform of the English Poor laws, 1830-1834,” *The Journal of British Studies* 20, no. 2 (1981), 135.

but rather confined to an institution and made as unattractive an option as possible. These were the principles upon which the New Poor Law would be built.²⁰⁷

The architects of the New Poor Law sought to sway the choices of those seeking relief by maximizing the pains and minimizing the pleasures associated with relief. They came up with a two-pronged policy of deterrence: “less eligibility” and “the workhouse test”. Less eligibility was intended to reverse the fatal logic of Speenhamland outdoor relief, under which pauperism had only proliferated, by reducing the degree of relief offered to a rate below what the poorest labourer

²⁰⁷ For some seminal discussions of the New Poor Law, and the intellectual, political and economic forces that shaped it please see Anthony Brundage, *The Making of the New Poor Law: The Politics of Inquiry, Enactment, and Implementation, 1832-1839* (New Brunswick: Rutgers University Press, 1978); Peter Mandler, "The Making of the New Poor Law Redivivus." *Past and Present*, 117 (1987):131; and F. Driver, *Power and Pauperism: the Workhouse System, 1834–1884* (Cambridge University Press, Cambridge, 1993). Debates about the motives for the reform of the poor laws were ignited at precisely the time when many liberal democracies, including the UK and the US, were committed to neoliberal policies that included welfare reform, the retrenchment of other social supports and the removal of constraints on free trade. On the scholarly debates on the meaning of the New Poor Law at this time, see Peter Mandler, “The Making of the New Poor Law Redivivus,” *Past and Present* 117, no.1 (1987) 131; Anthony Brundage and David Eastwood, “The Making of the New Poor Law Redivivus,” *Past and Present*, 127 (1990): 183; and George Boyer, "Malthus was Right after All: Poor Relief and Birth Rates in Southeastern England," *Journal of Political Economy*, 97, no. 1 (1989): 93. For more recent treatments of the subject see Anthony Brundage, *The English Poor Laws, 1700–1930* (Palgrave, New York, 2002); Timothy Besley, Stephen Coate and Timothy Guinnane, “Incentives, Information, and Welfare: England’s New Poor Law and the Workhouse Test,” in *History Matters: Essays in Honour of Paul David*, ed. Timothy W. Guinnane, Timothy, William A. Sundstrom, and Warren Whatley, (Stanford, CA: Stanford University Press, 2004); Sarah Tarlow, *The Archaeology of Improvement in Britain, 1750-1850* (Cambridge: Cambridge University Press, 2007); Charlotte Newman, "To Punish or Protect: the New Poor Law and the English Workhouse," *International Journal of Historical Archaeology* 18, no. 1 (2014): 122; and George Nicholls, *A History of the English Poor Law Vol. 3* (London: Routledge, 2016). For a recent work reviewing twentieth century scholarship on the poor within capitalism see Tim Rogan, *The Moral Economists: R. H. Tawney, Karl Polanyi, E. P. Thompson, and the Critique of Capitalism* (Princeton: Princeton University Press, 2017).

could earn. In this way, labour would always be seen as more attractive than aid. In a similar vein, the workhouse test was a way of weeding out the undeserving poor. All aid was now to be tied to one's tenure within a workhouse, a prison-like institution wherein one laboured at demeaning tasks in exchange for bare subsistence in miserable conditions. This was the crux of the New Poor Law, the rational calculus that would convert the "mischievous ambiguity of the word poor" into two distinct and manageable classes.²⁰⁸

The Poor Law Amendment Act passed in 1834, only after decades of social investigations, trials and parliamentary debate. Leading these efforts were economist Nassau Senior and social reformer Edwin Chadwick, the authors of the *Royal Commission on Operation of the Poor Laws* in 1832.²⁰⁹ Their approach to the problem of poverty was informed by their own backgrounds, but also by a cluster of ideas circulating prominently in the period.²¹⁰ Among these were Bentham's utilitarian rationalism and Malthus' notion of the "surplus" population.²¹¹

²⁰⁸ Clarifying this ambiguity by sharply delineating the pauper class from the "self-sustaining laboring class," was a chief aim of the poor law commissioner's report of 1834. The phrase "mischievous ambiguity of the word poor" comes from the report itself. Quoted in Engländer, *Poverty and Poor Law Reform in Britain*, 11. Also see the 1894 edition of *The First Report of the Commissioners for Inquiring into the Administration and Operation of the Poor Laws* (London: Eyre and Spottiswoode, 1894), 229.

²⁰⁹ George Nicholls, John Shaw Leferve and Thomas Frankland Lewis were the three chief commissioners of the New Poor Law itself. Senior and Chadwick wrote the report, but were not made commissioner. Chadwick, however, was named secretary.

²¹⁰ Boyd Hilton does a good job of presenting the complexity of these ideas, especially with regard to the links between protestant theology and political economy. See Hilton, *The Age of Atonement*.

²¹¹ The extent of Bentham's influence on the construction of the New Poor Law has been the subject of vigorous debate among historians, especially in the decades following the Second World War. Indeed, the intellectual context in which the New Poor Law was conceived was far too rich and varied to be attributed to the thought of one man. On the other hand, it is difficult to

Bentham's Rational Calculus and Pauper Classification System

Not only would Bentham's ideas about human motivation – the calculus of pains and pleasures through which people made rational choices- figure prominently in the design of the New Poor Laws, but so too would his workhouse designs and his emphasis on bringing classificatory order to the amorphous mass of the poor. In his writings on reforming poor relief Bentham proposed the creation of a system of some 2,000 workhouses distributed across the nation. In these, paupers would be confined and set to productive labour in exchange for sustenance and shelter. Bentham's "plan of provision" involved firstly dividing the poor into classes. A plan of treatment would be adjusted for each class with the aim of minimizing the expense of sustaining them while maximizing the profit from their labour:

For some of the classes a peculiar mode of provision is requisite, different as between class and class; as in the case of infants, lunatics, idiots, the deaf and dumb, and the blind. The rate of neat expense per head, as between class and class, is also susceptible of a very extensive scale of variation: the quantum and value of return, actual or possible, in the way of labour, by the produce of such labour, is again susceptible of a scale prodigiously more extensive.²¹²

In Bentham's proposal the indigent were broken into several large classes, which were then subdivided into ever more specific categories. For example, those whose indigence stemmed from

deny the elements of Bentham's thought that do appear prominently in the final poor law report of 1834. For a summary of the debates which took place largely in the period between 1945 and 1975, please see Stephen Conway, "Bentham and the Nineteenth-Century Revolution in Government," in *Jeremy Bentham*, ed. Frederick Rosen, 597-616 (London: Routledge, 2017), or footnote 771, above.

²¹² Jeremy Bentham, "Observations on the Pauper Population Table, Hereunto Annexed: a Table of Cases calling for Relief—a general Map of Pauper-Land, with all the Roads to it: Situation and Relief of the Poor – Tracts on Poor Laws and Pauper Management," 1796-8, in *The Works of Jeremy Bentham, Vol. 8* (Edinburgh: William Tait, 1838-1843), at <https://oll.libertyfund.org/titles/bentham-works-of-jeremy-bentham-11-vols>

“personal or internal causes” were then divided into those with an “infirmity of mind” and those with an “infirmity of body”. Each of these were then broken down into an extensive list of variations. Other major classes included those of “non-age” or “old age” (those either too young or too old to work productively) and “out of place hands.” This latter class, the unemployed, was subdivided by occupation, as well as by the causes of the cessation of their work.

Among the many detailed arrangements intended to heighten the efficiency of the “Industry-house system,”²¹³ Bentham’s plan included the two key principles that would become the core of the New Poor Law of 1834: the containment of all paupers within the workhouse, and the reduction of all relief to the barest minimum. Both of these principles were envisaged by Bentham as the practical application of his theory on utility, in which individuals chose the least painful, or most pleasant of the options presented to them.²¹⁴ Presented with choice of losing one’s liberty in the industry house, or sustaining oneself through productive labour outside of the industry house, most people would choose the latter. Likewise, presented with the choice of bare sustenance within

²¹³ Bentham had an ingenious and idealistic plan for getting the maximum productivity from even the most incapacitated of industry-house inmates: the blind could do things that did not require sight, and even the “lunatic” could be put to work on some simple tasks. The key to employing all the inmates was that no person should be employed in a task which someone with a lesser ability could manage. Similarly, he imagined that particular combinations of inmate classes could be housed together for maximum comfort: the blind, for example, could be placed in proximity to the disfigured, the deaf, next to the more raucous lunatics and so on. Conversely, Bentham urged the “separation of the indigenous and quasi-indigenous stock of the non-adult class, from the coming-and-going stock, who might excite hankerings after emancipation, by flattering pictures of the world at large.” Bentham, “Outline of a Work Entitled Pauper Management Improved”: Book 1, in *Tracts on Poor Laws and Pauper Management*.

²¹⁴ Bentham, (1789) “On The Principle of Utility,” in *An Introduction to the Principles of Morals and Legislation* (Oxford, Clarendon Press, 1907), Accessed through Library of Economics and Liberty Online, <http://www.econlib.org/library/Bentham/bnthPML1.html>.

the industry house and slightly better conditions provided by selling one's labour, most people would again choose the latter.²¹⁵

The "Industry-house system" was, for Bentham, "the only possible means, of extirpating mendicity." For, he argued "in this country, under the existing poor laws, every man has a right to be maintained, in the character of a pauper, at the public charge: under which right he is in fact... maintained in idleness." Only by compelling paupers to labour productively could this scourge of idleness be stopped. While the labour of inmates was central to the workhouse system that came into being after 1834, it was never carried out to the profitable extent imagined by Bentham, for it was administered by the state and not as Bentham had urged, by a private corporation following "mercantilist principles". The profit motive was, for Bentham, a key factor in encouraging the pursuit of maximum efficiency. Not only would the New Poor Law be less efficient and profitable than Bentham's plan, but it also fell far short of Bentham's ambition to tailor the treatment of pauper's according to their specific circumstances. Bentham had argued that it was indeed important to determine whether individual paupers were or were not to blame for their own indigence, but cautioned "that every plan of provision which regards the indigent, in the lump, either as virtuous or as vicious—either as objects of pure compassion, or as objects of pure

²¹⁵ Bentham explains, in a section titled "Compulsion Indispensable," how these principles would apply in the case of beggars: "It would be absurd to expect that... by any good management—the Industry-house provision could be rendered generally acceptable to beggars: that is, that a system which affords bare maintenance—maintenance in the most frugal and least luxurious shape—nor that otherwise than on the condition of working, as far as ability extends, to the full amount of it, should be preferred to a mode of life exempt from working—to the condition of him who is not at present the lowest of those who are maintained in idleness." Thus, the functioning of the industry house system depended upon the outlawing of begging. Bentham, "Outline of a Work Entitled Pauper Management Improved."

coercion or pure neglect—must be fatally erroneous.” In practice, the classificatory system accompanying the New Poor Law tended towards this fatal error.

Once they were established in the 1830s and 40s the reality of the workhouses fell far short of Bentham’s vision. Instead of tailoring the treatment and institutional space for each specific sub-class of pauper, the Commissioners of the poor law board soon settled for a simpler scheme wherein paupers were divided by age, and gender and health. This was partly because of the prohibitive cost of building separate workhouses, for although the New Poor Law was administered centrally, its funding was the responsibility of each district. Thus, conditions of workhouses varied from district to district.²¹⁶ But even the simplified division of paupers by age, sex and health was a cause of great distress and demoralization among workhouse inmates. It meant that family members were separated from each other for the duration of their stay, as if the condition of pauperism negated one’s right to family.²¹⁷

Nevertheless, the ruthless efficiency and calculative logic of the New Poor Law never fully achieved the transition from theory to practice. Not only was it too expensive to erect separate workhouses for each classification of pauper, but across the country the ban on “outdoor

²¹⁶ Englander, *Poverty and Poor Law Reform*, 29. Englander explains that, in subsequent decades there were some classes of paupers for whom specific provisions were made, based largely on their particular vulnerability and/or their innocence in finding themselves in the condition of pauperism. In time the infirm, pauper children and the aged were partially exempted from the strict calculus of the New Poor Law. In the latter half of the century medical care was made ever more available to the poor outside of the institutions and classification of pauperism. That is, people, by being sick, were not instantly pauperized. Meanwhile, it was thought that pauper children could be improved, - and their morals guarded- by being separated from the “unwholesome influence of the general mixed workhouse” and educated in barrack schools. Finally, towards the end of the century elderly paupers were favoured with better conditions. At least for these “deserving” poor, a less punitive and more socialized approach to relief was being tried. See 25-6.

²¹⁷ Besley, Coate, and Guinnane, “Incentives, Information, and Welfare,” 10.

relief” was resisted again and again. According to Englander, in industrial centres poor law guardians were often unwilling to enforce the ban because industrialists made it known that they wanted the poor to be available for upturns in the trade cycle. If they were confined to workhouses during the slow periods, the poor would also not be on hand when their labour was needed.²¹⁸ This, of course, contradicted the popular justification of the New Poor Law as the means by which the poor could be better incorporated into economy. It also revealed the extent to which pauperism and unemployment were attendant features of the market economy itself and thus, how ineffective a tool the New Poor Law was in addressing such problems.²¹⁹

Malthus Returns: the Poor as Surplus Population or Waste

Bentham’s utilitarian calculus may have helped to shape the institutions and policies of the New Poor Law, but the consensus on and will to reform the poor law system was largely influenced by Malthus’s theory on population and the causes of chronic pauperism. While his *Essay on Population* was originally regarded as exceedingly bleak, by the 1820s a consensus had formed around Malthus’ idea that the poor represented a surplus population.²²⁰ There were a number of reasons why political economists and social reformers may have become receptive to the language of “surplus” or “redundancy” at this time. First, surplus implies an order, or an ideal balance that has been breached. Not only does the trespass of a natural limit affirm the idea that there is indeed a natural order hidden beneath the apparent chaos of human affairs, but it suggests a clear way of restoring that order: the subtraction of the surplus. This appealed not only

²¹⁸ Englander, *Poverty and Poor Law Reform in Britain*, 29.

²¹⁹ *Ibid.*

²²⁰ Levitan, *A Cultural History of the British Census*, 51.

because it coincided with the optimistic view that social and economic relations were guided by natural laws, but because it suggested such relations could be uncovered and resolved with the unambiguous neatness of mathematical logic.²²¹

As I mentioned in the section on the rise of the census and statistics, the quantitative representation of social affairs only accrued legitimacy in the early decades of the nineteenth century, as the advantages of its chief characteristic- objectivity- became apparent. Numerical representation, with its universal application, answered the need at that time for certain knowledge of the shape and scope of the nation's population. The retrieval of numerical data on the population by the centralized efforts of the national census afforded government the comprehensive and "impartial" view it needed. Thus, as Levitan notes, "The notion of surplus population arose alongside and in dialogue with the development of the census, the dramatic population growth that it documented, and the increasing sophistication by which the population was internally differentiated."²²² Now that the unproductive portion of the population could be identified numerically, its disproportionate, "surplus" character could be confirmed as a mathematical fact.

²²¹ Levitan explains that the census, in counting the productive and non-productive members of the nation, reinforced the notion that there was a significant and *quantifiable* proportion of the nation that exceeded the natural balance, bringing the nation into disorder. Meanwhile, Poovey has argued that when Malthus revised his *Essay on Population*, eliminating much of its providentialist content and adding to it extensive numerical data, he helped to reshape "the cultural connotations of numerical representation." According to Poovey. Malthus' focus on numbers, devoid of the religious significance it had been given in eighteenth century Christian Platonism,– is precisely what repelled so many contemporaries and later romantic critics. In time, however, the amorality of numerical "facts" was associated with the greater truth claims of objective knowledge, 283.

²²² *Ibid*, 47-48.

Finally, the concept of a surplus population made up of paupers can be seen as an extension of the eighteenth century discourse on productivity versus waste. Waste land, as I discussed in chapter three, was land which was not being put to “productive” use. It served neither for growing crops nor as pasture nor for the extraction of natural resources for industry. Further, having no individual owner attached to it by law, it attracted strays. The vagrants and other commoners who lived or fed upon it were thought to be as unnamed, ungoverned and as dangerously disordered as the wasteland itself. In order for productive land - property that contributed to the nation’s economic wealth- to thrive, the obstacle and infection of wasteland had to be contained.

Such thinking recurred in the early nineteenth century commentary on the “question of pauperism.” Paupers were those unassigned to any productive labour, and their dependence on relief, or upon some illegitimate means of sustenance, was viewed as a drain upon all productivity and wealth. Both the able-bodied poor and true paupers, those who were unable to work for reasons beyond their control (infants, the aged, the sick), had to be contained somehow, so that their condition did not spread to the rest of the population. And like wasteland that had the potential to be made productive, the able-bodied but unemployed had to be converted somehow into a productive resource.

For Edwin Chadwick, enthusiastic “statist” and “overpowering poor law official,” the unproductive and infectious character of the surplus population of paupers was quite literally linked to waste. After his work on the Poor Law Report in 1834, Chadwick applied his interests in poor law reform and statistics to an investigation of the sanitary conditions of the urban poor. When an outbreak of typhus spread across a poor section of London in 1837 the poor law commission, alarmed by its impact upon poor relief spending, sent three physicians to study the

problem. The physicians determined that the problem stemmed from *miasmata*- the release of poisons into the air from decomposing or waste matter from animals, humans and vegetation. The solution to the problem was better sanitation- the removal of waste as well as the building of sewers, cleaning of streets and improvements in ventilation.²²³

Though Chadwick himself was not a physician he launched a series of investigations into the state of sanitation in poor neighbourhoods, the results of which were published in 1842 as the *Report on the Sanitary Condition of the Labouring Population of G. Britain*.²²⁴ Among other things, these investigations measured the “daily average and yearly aggregate productions of excrement” of the poor. As Poovey puts it “the critical products that interested Chadwick were labour and waste; in the overall social calculus he recommended, the object of the government was to increase the former by efficiently eliminating or redistributing the latter.”²²⁵ While the improvements of the sanitary conditions of the poor over the decades to follow was an unalloyed good, saving the lives of countless people and establishing the crucial role of public health in government, bureaucratic interventions such as Chadwick’s also illustrate how the risky category of the poor was managed through the logics of enclosure and improvement. After all, the Poor Law Commission’s inquiry into the typhus epidemic stemmed from its concern about an overreliance on poor relief, while Chadwick’s own investigations were an attempt to make the

²²³ Metz, “Social Thought and Social Statistics,” 265.

²²⁴ Edwin Chadwick, *Report on the Sanitary Condition of the Labouring Population of Great Britain, 1842*, ed. M. W. Flinn (Edinburgh, Edinburgh University Press, 1965), 80-99, 220-27, 246-54.

²²⁵ Poovey, *The Making of a Social Body*, 37.

New Poor Law system more efficient.²²⁶ The goal in both cases was to eliminate or contain the contagion of pauperism while improving the productive capacity of the poor in general.

Pervading the discourse on surplus population was an instrumental evaluation of the worth of human lives. That is, the worth of a human life was not seen as intrinsic but as conditional upon behaviors or characteristics that aligned with the objectives of an external entity: the nation state. Because the lives of paupers did not contribute to the national objectives of economic growth and political stability, they were viewed as surplus, redundant. These were lives to which no worth was attached, a condition that Agamben, in his work on sovereign power and modernity, has called “bare life.” Agamben explains that whereas in previous periods this “natural life”, *zoe*, had been considered sacred (*homo sacer*), after the emergence of the modern nation state only those with *bios* - lives constituted by the polis - were recognized. *Homo sacer*, excluded from the polis, now existed in a state of exposure, unclothed by the rights and protections given to *bios*.²²⁷ Before the prolonged efforts to reform the poor law system, the poor

²²⁶ Metz, “Social Thought and Social Statistics,” 265; Poovey, *The Making of a Social Body*, 37.

²²⁷ Giorgio Agamben, *Homo Sacer: Sovereign Power and Bare Life*, trans. By Daniel Heller-Roazen (Stanford: Stanford University Press, 1995). [http://korotonomedya2.googlepages.com/GiorgioAgamben-HOMOSACERSovereign Pow.pdf](http://korotonomedya2.googlepages.com/GiorgioAgamben-HOMOSACERSovereignPow.pdf) 1-10; 81-86. Agamben illustrated the link between sovereign power and *homo sacer* through the example of the concentration camp. The refugee has often been the figure most linked to his analysis, but others have explicitly linked bare life to the poor under Malthusian theory and the New Poor Law. See for example, Sambudha Sen “From Dispossession to Dissection: The Bare Life of the English Pauper in the Age of the Anatomy Act and the New Poor Law,” *Victorian Studies* 59, no. 2, (Winter 2017) 235-259; Patrick M. Brantlinger, *States of Emergency: Essays on Culture and Politics*, (Bloomington: Indiana University Press, 2013), 190-203; Gerry Kearns, “Bare Life, Political Violence, and the Territorial Structure of Britain and Ireland,” *Violent Geographies: Fear, Terror and Political Violence*, ed. Derek Gregory and Allan Pred (New York: Routledge, 2007), 7-36.

were members of the polity. They may have occupied a position at the bottom of the social hierarchy, but through customary rights and “outdoor relief” they were protected from full exposure to the risks of starvation. With the passing of the poor law reform act, paupers were essentially stripped of any claim to protection from the polis. Their choices were pared down to either mere subsistence in the condition of detention or a life of animal scavenging for survival: bare life. Just as the containment or conversion of wasteland and commons constituted private property, the containment or conversion of the poor constituted the political subject. For all the theoretical and practical classifications of paupers, and the classifications of the population, the fundamental classification in the era of classical political liberalism was the division between those with bare life and those with bios.

Conclusion

This chapter began with the emergence of two important nineteenth century technologies for knowing and controlling a large population from a distance. Britain’s national census and the statistical movement of the 1830s provided the government, and social reformers of all sorts, to map the population and identify risks within it. I then attended in some detail to the innovations in probability theory, such as the law of larger numbers, which allowed users of statistical knowledge to see large patterns in aggregated data. Such knowledge was essential both for the growing insurance industry and for the centralized administration of the government at the General Registry Office. In fact, we may think of the GRO as the government’s estate surveyor, since it took in information from across the nation and reported back. Two different maps of the nation were developed from statistical and census data: an aggregated national identity and a classification of the population into discrete categories. People began to recognize both the nation and their own particular categories as belonging to them. If the Victorian government had replaced Divine

Providence as the risk manager of society, it shared this role, to some extent with informal mutual aid societies and insurance companies. I end the chapter with the case of the New Poor Law, which sought to either contain the risky class of paupers through detention and improvement, or to cast them out of the polity, leaving them to “bare life.”

Chapter Six

Risk and Insurance since the Late Nineteenth Century: “Social Property” or “Risk Society”?

This chapter focuses largely on twentieth century developments in insurance and risk, not only in England, but internationally. It begins, however, with a sea change that took place in the late nineteenth century, when many governments began to recognize the degree to which a large propertyless class of people with no access to security was the greatest of all risks to the liberal capitalist state. Seeing that the New Poor Law solution of “contain”, “improve”, or “cast out,” was not working, reformers began to push for the socialization of insurance. I trace the development of these efforts from the patchwork of different schemes to the consolidation of the welfare state in the years immediately following the Second World War. In the second half of the twentieth century, both liberal governments and the insurance industry shared the role of managing the risks of citizens. Together, social insurance and the global industry of private insurance began to shape and regulate our lives. I then explore the “rise of risk” since the 1980s, from the dawn of neoliberalism to today, the period most associated with “risk society.” How has risk management evolved in the era of shrinking social services and the deregulation of industry and finance? What do the risks of global warming, terrorism and global financial crises mean when we reflect on the evolution of risk taking and risk management from the eighteenth century on? I conclude that in the modern effort to shelter from the risks of an uncertain future we have not yet learned that, far from guaranteeing security, attempts to control and calculate future events have tended to create ever more insecurity and uncertainty

The Shift towards Socialized Insurance in Late Nineteenth Century

In the latter decades of the nineteenth century there was a shift in the British governments' approach to the problem of poverty. Whereas the regime of the New Poor Law had attempted to weed the poor out of the polity, a new strategy gaining ground from the 1870s focused instead on containing the risk represented by the poor by granting them some basic access to security. Among the factors contributing to this change were the ineffectiveness of the New Poor Laws in reducing poverty, the inadequacies of corporate and mutual insurance organizations in protecting their members, and a climate of economic insecurity and philosophical pessimism about the prospect of endless progress.

The deterrent policies of the New Poor Law were widely resisted and resented. Far from redirecting the poor into the capitalist economy, recipients of workhouse aid were burdened with a stigma which effectively barred them from future employment.¹ Furthermore, there was little proof that poverty as a whole was decreasing under the New Poor Laws. Some of the pressure on the poor rates was relieved by industrial life insurance and friendly societies which provided some sort of financial security to sectors of society that were more susceptible to destitution while training them in the habits of thrift. But neither corporate nor mutual insurance schemes were without their critics in political administration.

Friendly societies, as I mentioned above, were susceptible to insolvency. Meanwhile, industrial insurers spent so much capital employing an "army of agents" to visit the homes of policy holders that the rate of return for those policy-holders was minimal. Worse still, encouraging these agents to "upsell" bigger policies only led to the cancellation of policies when

¹ Poovey, *Making of a Social Body: British Cultural Formation, 1830-1864* (Chicago: The University of Chicago Press, 1995), 108-9.

clients couldn't afford to make the payments. While the loss of money already invested in such policies only brought working class families closer to the workhouse, cancelled policies were a boon to insurers. According to the Northcote Report On the 1874 Royal Commission on Friendly and Benefit Societies, "the lapsing of policies amounted to windfall profits through `confiscation of the premiums of its members,'² Industrial insurers touted their role in inculcating habits of thrift among the poor, but with negligible returns on their savings, such thrift was dismissed by critics as "useless." Useless thrift, which wasted efforts to save among the working classes, was an unjust and inefficient means of governing working class security. Moreover, some questioned whether the virtue of thrift was being developed at all, if clients were constantly prodded towards it by insurance agents.³

With these concerns in mind, the British government began to challenge industrial insurers. As early as 1865 Prime Minister Gladstone began the construction of a rival system of life insurance, one that would be led by the state. Hoping to "drive industrial insurance companies from the market," his scheme did away with the costly and intrusive role of collectors, and encouraged policy holders to make small and regular payments to the Post Office. Not only would this bring them a better rate of return, but, since the Post Office had no financial interest in securing new policies, they would also be spared the sort of upselling tactics used by insurance agents. Unfortunately, when this new system proved to be unsuccessful it confirmed the insurers' view that the poor had to be cajoled into habits of thrift and saving.⁴ Rather than quitting the scheme

² Royal Commission to Inquire into Friendly and Benefit Building Societies, 1874. quoted in O'Malley, "Imagining Insurance: Risk, Thrift and Life Insurance in Britain," *Legal Studies Research Paper* 9, no. 119 (2009) <http://ssrn.com/abstract=1491898>, 8-9.

³ O'Malley, "Imagining Insurance," 8.

altogether, the government expanded the system to include other forms of insurance coverage and grudgingly adopted the practice of sending the collectors into policyholders' homes. This was an unpopular move. Aside from it being thought a duty beneath the dignity and objectivity of members of the post office, it contradicted the central commitment of liberal government to less intervention in the lives of citizens. While the post office scheme limped along for a few more decades, its importance lay not in its practical success as an insurance office, but in its having been the first of many attempts by the state to directly arrange for the basic security of its citizens.

Meanwhile, the government, which had so far struggled to regulate private insurance schemes and friendly societies, attempted a more far reaching reform with its passing of the Life Assurance Companies Act in 1870. Under this Act life assurance companies were to be constrained by a number of conditions, including a £20000 surety to be paid upon the founding of each company, a strict separation of life from other kinds of insurance, and submission to periodic audits by external actuaries.⁵ According to Mcfall, this Act “prompted waves of panic across the industry” not only because of its terms but also because of the broader question it seemed to raise: whether the market was the appropriate means of distributing life insurance at all.⁶ Many responded to this question in the affirmative, arguing that the government should not interfere at all, or that it should limit its role to regulating the industry. But there were others too, who felt that the central government should take on entirely the management of insurance on lives.⁷

⁴ Ibid, 9.

⁵ Liz McFall, “Prudentialism and the ‘Missionaries’ of Life Assurance,” *CRESC Working Papers*, 32 (2007):13.

⁶ Ibid, 13.

⁷ Ibid, 14.

In fact, at this time, support was growing for national and compulsory insurance of all kinds. In the 1870s and 80s a number of proposals were submitted to Parliament for consideration, including a compulsory health insurance scheme and a nationwide general insurance system.⁸ These advocates of a public approach to insurance were not only responding to the corruptions and limitations of the insurance industry, but were also inspired by the apparent efficacy of the system in Germany, where national socialized insurance had been in place for decades already. While Parliament rejected these early attempts to nationalize insurance, it wasn't very long before similar schemes were supported by legislation. Industrial accident insurance and old age pensions were, for example, nationalized as early as 1897 and 1908.⁹ By the turn of the twentieth century the state had begun to bear some of the collective risks of its citizens: in the decades to come it would progressively take on the management of ever more of those risks.

But this turn towards socialized insurance may not have happened had there not been a major change in thinking about poverty in the 1870s and 80s. This involved the recognition that poverty was an *enduring* problem, one that could not be solved by the neat equations of utilitarian rationality. The main focus of one such equation, underpinning the New Poor Law, had been the conversion of the "undeserving" poor into productive labour. These were able bodied individuals who, though capable of employment, were not regularly engaged in it. For much of the nineteenth century the prevailing opinion was that such people had not been *willing* to work. Yet, after decades of applying the less eligibility principle and the workhouse test this category of the poor

⁸ David Knights and Theo Vurdubakis, "Calculations of Risk: Towards an Understanding of Insurance as a Moral and Political Technology," *Accounting Organization and Society* 18, no. 7/8 (1993): 750.

⁹ *Ibid*, 752.

remained undiminished. Further disenchanted by the economic depression of the 1870s and 80s, many began to question the inherent harmony that had been attributed to market forces since the time of Smith. If—as it began to appear—disruptions and crises were just as inherent to the market as its harmonious elements, perhaps the hordes of unemployed seeking aid were not merely unwilling to work, but were systematically confronted with a lack of demand for their labour. The promise of full employment and the precepts of political economy were increasingly brought into question.¹⁰ Among those challenging the notion that poverty emanated from the moral failings of individuals were early social scientists like Charles Booth, whose investigations of the working poor in the 1880s and 90s provided empirical evidence of social and structural causes of poverty.

11

Increasingly, a host of problems were now being redefined as social risks.¹² Not only were those suffering poverty exposed to more insecurity than any other group, but the persistence of their condition threatened the security of the entire society and of the economic system by which it was circumscribed.¹³ The uprising in Paris in 1851, and the gathering force of socialist thought, were ready reminders to the governing class that those who have little to lose can wield the weapon of their numbers and shake the stability of society. As Castel explains, the entrenchment of

¹⁰ Ibid, 748-9. Also see Jose Harris, “Victorian Values and the Founders of the Welfare State” in *Proceedings of the British Academy*, 72 (1992): 167-8.

¹¹ Knights and Vurdubakis, “Calculations of Risk,” 748.

¹² Jose Harris, “Political Thought and the Welfare State 1870-1940: An Intellectual Framework for British Social Policy” in *Before Beveridge: Welfare Beyond the Welfare State*, ed. David Gladstone, (Trowbridge, UK;:The Cromwell Press, 1999) p. 44

¹³ As Castel points out, the plight and the threat of propertyless workers, was only recognized once they had shifted from the margins to the very core of society. See Robert Castel, “Emergence and Transformations of Social Property, *Constellations* 9, no. 3 (2002): 322.

capitalism in the nineteenth century had made property ownership the condition of entry into the polity. The propertyless were, of course, always the majority of the population, both in France, the context for Castel's discussion, and in Britain. However, as Castel notes, only with the rise of industrialization was the role of the propertyless in the economy recognized. To preserve the system of private property those excluded from it had to be appeased with some other form of property. They had to be admitted to the polity at least to the degree of offering basic security.

In the late nineteenth century few could deny the unremitting growth of a class of people with no property or security beyond their labour- labour that was only periodically in demand. The threat to social stability that such a class of people represented may well have been the deciding factor that convinced the British government to take on the insurantal role of managing social risks. Yet the fit between the logics of insurance and liberal governmentality had been recognized long before this period. For at least a century, both friendly societies and insurance companies had been held up as the ideal models for organizing and optimizing social relations among autonomous individuals. But the more explicit state management of social risks did not mean that private insurance simply stepped aside. Instead, over the next few decades responsibility for the management of risks was divvied up between state and private insurers, and it took another major economic crisis- the great depression of the 1930s- before a more robust system of social protection was constructed in most liberal democracies.

Social Property?

Early 20th Century Insurance in Britain

For those of us who have lived through the neo-liberal assault on the welfare state, it is all too easy to accept the view that the state and the market are opponents in a protracted conflict. This

antagonistic relationship is not, however, born out in the history of socialized insurance. True, by the close of the nineteenth century there had been a shift away from the rhetoric of “less government” and the practices of laissez-faire political economy. Positivist methodologies, mechanistic views of society, and the promotion of the rational self-interested individual that had all helped to shape the New Poor Law had fallen out of favour.¹⁴ Above all, there was a growing recognition that problems like unemployment and poverty were “social risks.” But while “socialized insurance” gained legislative purchase in the early twentieth century in Britain, the idea of socializing, or pooling risks at the national level was not new. As early as 1772, Richard Price had attempted to tie his annuity scheme to a reform of the nation’s poor law system, and in the following decade John Ackland had proposed applying friendly society principles to poor relief.¹⁵ Neither these, nor a handful of late nineteenth century attempts to nationalize insurance succeeded.¹⁶ Yet, when the British government did begin, in the twentieth century, to adopt insurantal technologies to address social risks, it was not so much turning from an individualist to a collectivist model, as it was extending the logic of liberal governmentality.

As a technology that manages individual risks *indirectly* by pooling them, insurance offers an organizational solution particularly applicable to the core problem of liberal governments: the maintenance of both social cohesion and individual liberty. It should not, therefore, come as a surprise that some of the figures most closely associated with both classical

¹⁴ Harris, “Political Thought and the Welfare State,” 50.

¹⁵ Knights and Vurduburkis, “Calculations of Risk,” 751.

¹⁶ For example, Cannon W. Blackley’s 1878 proposal for a compulsory “national insurance” that would replace existing poor laws, and H.S. Tremenheree’s 1880 proposal for a compulsory health insurance scheme were both rejected. See Knights and Vurduburkis, “Calculations of Risk,” 751.

liberalism and the New Poor Law viewed the principles of both insurance and friendly societies as appropriate models for governance. Chadwick, the Benthamite social reformer who had helped to draft the report on which the New Poor Law was founded, noted in his 1828 essay “on the means of insurance,” that insurantal techniques such as data collection, actuarial tables and the law of large numbers could be used by government to “forestall sickness and death” in the population. In 1840 J.S. Mill went further, declaring that “a state ought to be considered as a great benefit society or mutual insurance company” a point that would be repeated almost verbatim by the Fabian Sydney Webb in 1890.¹⁷

The foundations of the welfare state that would be established in the 1940s would include some elements from both insurance and friendly societies, with some necessary differences to how contributions would be made, risks classified and benefits distributed. But this welfare legislation didn’t appear fully formed from thin air. It was, rather, a rationalization and centralization of earlier piecemeal reforms made by Liberal governments in the Edwardian period, such as labour exchanges, industrial accident legislation in 1897 and old age pensions in 1908.¹⁸ The most ambitious of these reforms was Lloyd George’s National Insurance Act of 1911, which would provide sickness and unemployment insurance to workers. The scheme called for compulsory contributions of 4 pence from each employee, to be supplemented by a 3 pence contribution from the employer and another 2 pence from the government. The scheme would entitle roughly two million male workers to benefits should there be an interruption in

¹⁷ Ibid, 751.

¹⁸ Ibid, 752. Also see Jane Lewis, “The Voluntary Sector in the Mixed Economy of Welfare,” in *Before Beveridge: Welfare beyond the Welfare State*, ed. David Gladstone, 10-17 (Trowbridge, UK;: The Cromwell Press, 1999) 15.

their regular income.¹⁹ Meanwhile four fifths of the working population would be covered for sickness and disability through the National Health Insurance side of the scheme.²⁰ While this was a good deal, it was not a win for all.

Many in the working class felt that the programme failed to address the core problems of low wages and uncertain employment.²¹ Others, who had proposed alternative programmes for replacing the poor laws, were disappointed to see their visions sidelined by the victory of the insurance model. Nor were private insurers pleased at the prospect of losing part of their market to a government scheme. In fact, the powerful insurance lobby managed to change a number of details in the programme, maintaining, for example, their monopoly on life insurance and insisting on playing a role, alongside friendly societies, in distributing benefits locally.²²

¹⁹ Women not excluded from the National Unemployment Insurance scheme, however because relatively few were engaged in waged work, most women were not covered, and the benefits for those who were covered were lower than those provided to men. Meanwhile, The National Health Insurance side of the legislation was, from the beginning, characterized by a differential benefits by age and gender. See J.C. Brown, *Victims or Villains? Social Security Benefits in Unemployment*, (York, Joseph Rowntree Memorial Trust, 1990), 81-2.

²⁰ Michael Heller, "The National Insurance Acts 1911–1947: the Approved Societies and the Prudential Assurance Company," *Twentieth Century British History* 19, no.1 (2007) 2.

²¹ Knights and Vurduburkis, "Calculations of Risk," 753-4; Also see J.R. Hay, "The Origins of the Liberal Welfare Reforms," in *Studies in Economic and Social History*, ed. M.W. Flinn (London: MacMillan, 1983), 19.

²² O'Malley argues that, although industrial life insurance was widely considered problematic, those crafting the 1911 legislation decided against incorporating it into the national insurance scheme as a concession to the industry in exchange for its acquiescence on the matter of social health insurance coverage. See O'Malley, "Imagining Insurance," 12. While O'Malley further suggests that the government had a "pragmatic desire to deploy the insurance companies and their collectors as convenient agents for state insurances," Knights and Vurdubakis suggest that the inclusion of private insurers as one of the "approved societies" for distributing benefits was a grudging reversal of the government's original intent to exclude them. See Knights and Vurdubakis, "Calculations of Risk," 755. One historian, Gilbert, frankly described the industry's role in this process as rapacious: "the insurance companies sought...to take over the government programme and run it themselves." Whereas many had hoped the National Insurance programme

Meanwhile, because contributions to National Insurance were directly tied to employment, many people, including most women, casual workers, the sick, and the elderly, were left uncovered.²³

National insurance did, however, answer the political and fiscal needs of a government which wished to pacify a restive working class, improve the health of the population, and restore the nation's strength and efficiency. As Castel has noted, European governments at the turn of the twentieth century had come to see the necessity of granting "social property" – "a right of access to collective goods and services" – to the growing mass of non-property owners, in order to stem the threat it posed to the social order. Not to grant this class access to social security was "to sanction the presence of a zone of an ever more massive and potentially explosive vulnerability, condemned to permanent insecurity, and which, like a 'gangrene', would gnaw away at the body politic as a whole."²⁴ In the British case, there was also a fear that in times of economic crisis the most vulnerable of the poor would infect the more respectable poor, morally and physically, but also politically, by stirring up revolutionary sentiment.²⁵ Such fears likely lay beneath Churchill's words when he wrote, in the report on the poor laws in 1909, that the working class "will not continue to bear, and they cannot, the awful uncertainties of their lives. That is why standards of wages and comfort, insurance in some effective form or other against

might cover those excluded from both private insurance policies and the friendly societies (which tended to be the domain of skilled workers only), it "became instead a form of national compulsory savings administered awkwardly and expensively by private insurance firms, most of which saw the programme ... as an avenue to the extension of their private business." Quoted in Knights and Vurdubakis, "Calculations of Risk," 755.

²³ J.R. Hay, "The Origins of the Liberal Welfare Reforms," 12.

²⁴ Castel, "Emergence and Transformations of Social Property," 319; 322-323.

²⁵ Hay, "The Origins of the Liberal Welfare Reforms," 34.

sickness, unemployment, old age, these are the questions, and the only questions by which Parties are going to live in the future.”²⁶

The reforms enacted between 1906 and 1914 were the governing Liberal Party’s way of staving off political threats on two fronts: the growing power of the Labour Party, which more directly represented the interests of the working classes, and, more profoundly, the rising tide of support for socialist thought at home and abroad.²⁷ “Socialism”, Churchill explained, “would destroy private interests,” whereas liberalism would “preserve them in the only way they could justify being preserved, by reconciling them with public rights.” Insurance, both voluntary (through private insurance) and compulsory (managed by the state), would become the key means of realizing this reconciliation between private interests and public rights. By providing a larger segment of the population with access to security in the face of the worst eventualities, the state was committing itself to a new role, that of “insecurity reducer.” The state would attempt,

²⁶ Knights and Vurdubakis, “Calculations of Risk,” 749.

²⁷ There were a number of other factors behind the early nineteenth century Liberal Government’s to attempt to improve general social condition of the nation. There had been some concern, for example, since the closing decade of the previous century, that Britain’s economic and imperial standing was in decline relative to other nations, such as the U.S. and Germany. At the same time, many feared that the strength of British people themselves was deteriorating, morally and physically. This idea was backed up, to some degree by the empirical investigations of working class social conditions by social scientists such as Booth and Roundtree and it was distressingly confirmed during the Boer war, when 40% of those recruited to fight were declared unfit for service. Concern about the deterioration of the population was conceptually linked to discourses about both eugenics and civilizational degeneration that were prevalent in the fin de siècle period in European and other Western nations. In Britain, these ideas spawned a fixation with the idea “National Efficiency”, the theory that the welfare of the working classes and of the empire were interdependent. Finally, the idea that socialized insurance might raise the standards of the lower classes was inspired by the examples of other nations that pioneered such schemes, such as Germany, New Zealand and Denmark. See Hay, “The Origins of the Liberal Welfare Reforms,” 27-32.

in Churchill's words, "to substitute for the pressure of the forces of nature, operating by chance on individuals, the pressures of the laws of insurance, operating through averages."

In the first few decades of the twentieth century social insurance in Britain and elsewhere was still in its infancy. Nevertheless, the social legislation introduced in this period inaugurated a new set of relations at the core of modern societies: those between the state and individuals, between the state and private insurance companies and between individuals and the larger society. With the passing of the National Insurance Act a contractual relationship was forged between the state and individuals. The state would reduce insecurities in exchange for the regular contributions of workers to the National Insurance fund.²⁸ These compulsory contributions by individual workers were, according to Knights and Vurdubakis, intended to prevent dependency and demoralization on the part of the working class.²⁹ Meanwhile, because health coverage was tied to the contributions of workers, not all individuals in British society were given the chance to enter into a contractual relationship with the state. Women were effectively excluded from the 1911 schemes, and even with the expansion of the Act in 1920, their contributions and benefits were set at a lower rate than for men.³⁰ Meanwhile, the contractual relationship with the state did not extend to married women, for responsibility for the contract lay with husbands.³¹

²⁸ Harris, "Political Thought and the Welfare State," 62; Heller, "The National Insurance Acts," 2.

²⁹ Knights and Vurdubakis, "Calculations of Risk," 750.

³⁰ Brown, *Victims or Villains?* 82-83.

³¹ Susan Pedersen, *Family, Dependence, and the Origins of the Welfare State: Britain and France, 1914-1945* (Cambridge: Cambridge University Press, 1995), 56.

Whereas a host of different agencies responded to the problem of pauperism in the nineteenth century, including private insurers, charities, friendly societies and the state-, by the second decade of the twentieth century it was clear that the management of such social risks would now fall to just two large actors acting in a partnership: the private insurance industry and the state. The 1911 National Insurance Act “brought into being a hybrid institutional apparatus that straddled both the public and private spheres.”³² Both private insurers and friendly societies were charged with the direct administrative tasks of collecting contributions and delivering benefits, but whereas membership in the former expanded considerably over the next three decades, it dwindled away in the latter.³³ According to O’Malley this “reflected a pragmatic desire to deploy the insurance companies and their collectors as convenient agents for state insurances.”³⁴ Indeed, as McFall notes, the fact that the “private, commercial model survived” the state’s incursion into its markets “serves as an indication both of its resilience and adaptability but also of just how neatly it

³² Knights and Vurdubakis, “Calculations of Risk,” 755.

³³ Some of the success of Industrial insurance companies in recruiting new members was due to their enrollment of women and unskilled workers into their schemes, two large groups who were eligible for coverage under the 1911 Act, but who were historically excluded from friendly societies. But the waning of Friendly Societies over subsequent decades has also been attributed to their inability to compete with private insurers, which could afford to operate at a loss in distributing benefits, in exchange for access to a wider market for their other products. They were, thus, less stringent in determining eligibility for benefits and were even able to add extra benefits on to the minimum that was funded by the National Unemployment Insurance and National Health Insurance schemes. Meanwhile, their primary business soared: by 1939, according to Whiteside, there were “2.5 life policies for every UK citizen and four fifths of these were held by one of 14 major industrial insurance companies.” P.22 In contrast, by the 1940s, friendly societies were faced with an aging membership, low participation and insolvency. Green and Whiteside both see the demise of the friendly societies as resulting from their loss of autonomy under the centralized regulation of the National Insurance scheme. See Noel Whiteside, “Social Insurance in Britain 1900-1950: Frameworks of the Welfare State,” *La Previsión Social en la Historia* (2009): 538-541; 552-3.

³⁴ O’Malley, “Imagining Insurance,” 11-12.

intersected with the larger goals and values espoused in a still prevailing liberal political rationality.”³⁵

The most important relational change introduced by early social insurance was the interdependency that the dynamics of insurance established between individuals and the larger society. Insurance pools together a population's risks, and by this means, individuals can, as Churchill puts it, “be secured against catastrophe which would otherwise smash them for ever.”³⁶ Risk pooling created a mutual dependency between the security of individuals and that of the collectivity to which they belong. Such an arrangement answered the particular needs of liberal political rationality by providing a basis and a means of social cohesion in a population of free individuals who were no longer embedded in traditional communities or institutions. In the decades following the 1911 National Insurance Act, British politicians were increasingly mindful of the benefits of improving a sense of solidarity in the population, and of the usefulness of insurantal technology for achieving this.

Donzalot has written about the importance of the idea of solidarity in modern governance, and while his discussion refers to the experience in France, I think it is relevant to modern governance in general. He suggests that solidarity offered a solution to the antagonistic dynamic that dogged “the metaphysics of sovereignty.” If, he explained, “right resides solely in the individual, the individual can always repudiate and paralyze the intervention of the state.” If, on the other hand “the state is the embodiment of the general will, the active synthesis of

³⁵ McFall, “Prudentialism,” 14.

³⁶ Winston Churchill, quoted in Knights and Vurdubakis, “Calculations of Risk,” 752.

individual sovereignties and powers, there is nothing left to oppose it.” The way out of this dilemma was to find a different foundation for the legitimacy of the state, a foundation external to social relations. Such a foundation was made possible by the idea of social solidarity.³⁷ In its role of overseeing and promoting the interdependence of the individuals that make up society, the state was justified in its legislative and economic interventions: “The concept of solidarity makes it possible to arrive at a situation where the state itself is no longer at stake in social relations, but stands outside them and becomes their *guarantor of progress*.”³⁸ In elucidating his theory of social property Castel has likewise described how the state began, in the early twentieth century, to play the role of a guarantor of progress and social solidarity: The “social state” he writes, was tasked with “ensuring the security- the social security- of the members of a modern society and reinforcing their interdependence in such a way that they continue to constitute a society.” It “fundamentally ...sought to be an insecurity reducer, a guarantor of effective political or legal regulations, and provider of collective services aimed at maintaining social cohesion.”³⁹

The concept of solidarity had attracted attention in fin de siècle Europe with the 1893 publication of Durkheim’s *The Division of Labour in Society*. In this work, Durkheim compared

³⁷ The legitimization of the state, through social solidarity is also discussed by Peter Baldwin, *The Politics of Solidarity: Class Bases of the European Welfare State, 1875-1975* (Cambridge: Cambridge UP, 1990), and Romke Van der Veen, “Risk and the Welfare State: Risk, Risk Perception and Solidarity,” In *The Transformation of Solidarity: Changing Risks and the Future of the Welfare State*, ed. Romke van der Veen, Mara Yerkes, and Peter Achterberg (Amsterdam University Press, Amsterdam 2012), 16.

³⁸ Jacques Donzelot in “The Mobilization of Society,” in *The Foucault Effect: Studies in Governmentality* ed. Graham Burchell, Colin Gordon and Peter Miller, (Chicago: University of Chicago Press, 1991), 171-173.

³⁹ Castel, “Emergence and Transformations of Social Property,” 319.

the kind of social cohesion that prevailed in small, traditional and homogeneous societies with those prevailing in large industrialized and complex societies. The former, in which people were bound together by common values and roles, he characterized as having a “mechanical” solidarity. In the latter, where the division of labour was highly complex, it was the interdependence of their differentiated roles which bound people together. Durkheim called this kind of solidarity “organic”, because it resembled the inter-reliant relations of bodily organs.⁴⁰ According to Gerard Delanty, the transition from ‘mechanical’ to ‘organic’ social solidarity, from “social integration through family and religion to integration through membership of occupational groups and the interdependence of these groups,” was a crucial moment in the emergence of modernity itself.⁴¹

The dependence of all individuals upon each other in a complex society had already begun to develop as a result of industrialization and urbanization in the latter half of the nineteenth century. It was not until the turn of the century, however, that governments began to see that this mutual dependence invited a particular “mode of state intervention,” one, according to Donzalot, “which affects the *forms* of the social bond rather than the *structure* of society itself. The aim is not the recognition of the right to work and its application...but the development of forms of solidarity in society which take account of the greater risks faced by certain of its members, risks to which they were also in a position to expose society as a whole.”⁴² It is thus

⁴⁰ Gerard Delanty, “The Foundations of Social Theory,” in *The New Blackwell Companion to Social Theory*, ed. Bryan S. Turner, (UK: Blackwell-Wiley, 2009), 26.

⁴¹ *Ibid*, 26.

⁴² Donzalot, “The Mobilization of Society,” 173.

not surprising that the insurance principle of mutuality came to be viewed as the most appropriate means of reinforcing and regulating this modern and abstract form of social solidarity.

By pooling and managing these risks the state itself, and private property, are left unscathed, while warring political factions, with their contradictory visions of a just society, are neutralized. Donzalot does not use the term ‘risk-manager’ for the role the state begins to play in cementing social solidarity, but he does describe it as the transposition of an “insurantal technology” “to the arena of the security problems of the whole society.”⁴³ With the formation of the welfare state in the mid twentieth century this insurantal approach became an undeniable feature of liberal democratic governance.

Towards the Welfare State

It is said that the term ‘welfare state’ was first coined by Sir William Temple, Archbishop of Canterbury, when, in 1941, he compared the motivation of the British government with that of the ‘warfare state’ of National Socialist Germany. Where Germany funnelled all of its energy and resources towards warfare, Britain planned to channel its own resources towards welfare of its citizens. Temple’s vision of a just post-war society was shared by many in the wartime coalition government, most notably by the economist William Beveridge. In 1942, as chair of a committee tasked with evaluating the existing social insurance system, Beveridge wrote and submitted to Parliament the *Report on Social Insurance and Allied Services*. Beveridge’s report highlighted three “guiding principles”. First, in creating a new social insurance system planners should take advantage of the “revolutionary moment” of the war by making it as comprehensive as possible. Second, social insurance should be viewed as part of a “comprehensive policy of

⁴³ Donzalot, quoted in Knights and Vurdubakis, “Calculations of Risk,” 749.

social progress,” which should aim to overcome “Want, Disease, Ignorance, Squalor and Idleness.” Finally, social insurance should centre on a contractual relationship between the state and the individual, wherein the state would provide security in return for each individuals’ contributions. The state should guarantee a national minimum standard of living without stifling “incentive, opportunity and responsibility.”⁴⁴ Beveridge’s plan would bring pre-existing health, employment and pension schemes into one comprehensive system, based on risk pooling and the contributory principle used in insurance.⁴⁵ Beveridge envisioned a new social policy in which “three methods of security” would coexist: “social insurance for basic needs; national assistance for special cases and voluntary insurance for additions to the basic provision.” His Report is still considered the founding text for Britain’s post war reconstruction and for what came to be known as the post-war social compact.⁴⁶

⁴⁴ William Beveridge, *Social Insurance and Allied Services, Presented to Parliament by Command of His Majesty November, 1942*, HMSO Cmnd 6404, Accessed at Socialist Health Association, <http://www.sochealth.co.uk/national-health-service/public-health-and-wellbeing/beveridge-report/>

⁴⁵ Ibid. Unlike private insurance however, premiums would not be adjusted according to risks, because, with contributions being compulsory, the risk pool would be large and diversified enough that the fund would be unlikely to lag behind benefits claimed. Meanwhile, Beveridge proposed a national assistance program for special cases where people could not contribute through employment. As this would be an allowance, it would require means-testing in order to ensure true need. Beveridge also outlined three indispensable features, or “assumptions” of a post war social security policy: a scheme for children’s allowances, full health and rehabilitation services and state maintenance of full employment. Together, these would supplement incomes interrupted for a various reasons.

⁴⁶ It was also wildly popular for a government report. People apparently lined up outside His Majesty’s Stationary Office the night before it was made available to the public; it sold 100,000 copies in the first month and went on to sell more than half a million. Noel Whiteside, “The Beveridge Report and its Implementation: a Revolutionary Project?” *Histoire@Politique*, 24 (2014): 1-2.

While much of the groundwork for Britain's welfare state was laid during the second world war, this work was largely an institutional extension and rationalization of the reforms enacted earlier in the century. The experiences of two world wars and a devastating economic depression had underscored to political leaders of all stripes the need to more fully commit to the principles behind the earlier reforms. While those early reforms did provide basic social security to a greater number of workers than ever before, many were still left uncovered. Moreover, the social protections afforded by the National Health and Unemployment Insurance and the Labour Exchange and Pensions Acts did little to forestall the excesses and abuses of the market itself.

After the First World War Britain, like many countries, continued with a generally non-interventionist approach to the economy. The world-wide economic depression of the nineteen-thirties was not, in the case of Britain, preceded by boom years in the 1920s. On the contrary, this was a time of high unemployment, deflation, contractionary fiscal and monetary policies and high national debt.⁴⁷ This combination of conditions and policies led to a further decline in investments and spending. Meanwhile those nations experiencing a boom in production, in particular the USA, also followed a tight monetary policy, even as they cut taxes drastically, and, by easing regulations, allowed for the rise of monopolies, a frenzy of speculative investment in the stock market, and the formation of a credit bubble. After the First World War, the US had replaced Britain as the world's leading creditor and exporter- it was also the world's second

⁴⁷ One reason for the general economic contraction of the 1920s in Britain was that there was now a global oversupply of the resources with which Britain had dominated world trade in the previous century. Now that other countries produced and exported iron, cotton and steel, Britain's productive capacity shrunk. Barry Eichengreen, "The British Economy between the Wars" in *The Cambridge Economic History of Modern Britain*, ed. Roderick Floud and Paul Johnson, 314-343 (Cambridge: Cambridge University Press, 2004), 314-16.

largest importer after Britain.⁴⁸ The dominance of the US economy, and its interconnections with economies around the world, meant that when its stock market crashed in 1929, those economies were also severely impacted.⁴⁹

While the 1930s were not as devastating for Britain's economy as they were for the economies of most other nations, the global crisis only exacerbated an already severe and prolonged unemployment problem. Even this problem was less severe than in other nations, such as the USA or Germany, where one third of workforce was unemployed during most of the 1930s. At its peak, in 1932, Britain's unemployment rate was 17%. Nevertheless, with 10% of insured workers remaining unemployed by 1938, the situation was untenable.⁵⁰ Insurance employment benefits— which had been expanded to more categories of workers in 1920- were extremely costly for the government to pay out to such a large segment of the population at once, while also being too limited in duration to protect workers from the enduring and systemic shortage of work.⁵¹ Meanwhile, a lack of income among such a large proportion of the population inhibited consumer demand, further slowing the economy. In these conditions, many

⁴⁸ Nicholas Crafts and Peter Fearon “Lessons from the 1930’s Great Depression,” *Oxford Review of Economic Policy* 26, no. 3 (2010): 285–317, 289.

⁴⁹ According to Crafts and Fearon, the key factor in the transmission of the crisis from the U.S. to economies around the world was the international adherence to the gold standard. Many nations, attempting to balance budgets according to the rules of the gold standard, drastically cut public spending and kept interest rates high, but this did little to help with rising unemployment, shrinking demand, and soaring debts. See Crafts and Fearon, “Lessons from the 1930’s,” 294-297.

⁵⁰ *Ibid*, 295. Also see Eichengreen, “The British Economy between the Wars,” 334.

⁵¹ *Ibid*, 339-340.

workers were drawn to the alternatives offered by fascism on the one hand, and socialism on the other.⁵²

When he reflected on this experience, as well as those of America and of the global crisis as a whole, economist Milton Keynes drew from them certain lessons on both avoiding and recovering from economic recessions. His 1936 treatise *The General Theory of Employment, Money and Interest* highlighted the imperative of full employment for effective demand in the domestic economy and the dependence of full employment upon a confident investment climate stimulated by an expansionary fiscal policy.⁵³ This meant that, rather than reacting to a sluggish economy with austerity measures, as most major economies had in the early years of the economic crisis, the government's role should be to "prime the pump" through a comprehensive socialization of investment. Socialized investment did not mean that the state would take over the means of production but rather that investment activities should play a beneficial role in society. While he was highly critical of the certain features of capitalism, such as speculative investment, Keynes was far from being a socialist. Rather, he wanted to save capitalism from its own demise by improving its faults, the worst of which were unemployment and inequality. Keynes' thinking would play a major role in shaping a post war governmental strategy of interventionist fiscal policies and a focus on full employment. Socializing investment would foster "a new kind of capitalist culture of cooperation between public and private authorities."⁵⁴

⁵² Crafts and Fearon, "Lessons from the 1930s," 292-293; 299.

⁵³ Fadhel Kaboub, "Socialization of Investment," in *International Encyclopedia of the Social Sciences*, 2nd edition, Vol. 7, ed. William A. Darity, Jr. (Detroit, MI: Macmillan Reference USA, 2008), 649.

⁵⁴ Kaboub, "Socialization of Investment," 649.

Solidifying this cooperative relationship between the state and the capitalist economy - and facilitating the development of the welfare state- were the conditions and experiences prevailing during the Second World War. In many ways, the war was a means to economic recovery, for it demanded a massive increase in production while it drove the majority of the workforce into combat. But there were other, perhaps more important ways that the wartime experience increased the capacity and willingness of states to expand welfare provisions. Administrative capacity, for example, was improved and centralized as never before in order to meet the exceptional needs of a nation at war. This, along with a considerable increase in taxation rates and public expenditure, allowed the wartime government to carry out a comprehensive programme of social provision.⁵⁵ Programmes that had already existed for decades, but which had been geared towards the neediest segment of the population –and which still carried with them the residual moral stigma of Victorian poor relief schemes – were in wartime dramatically expanded to reach a major portion of the population. The School Meals Programme, for instance, had provided meals to only 1 in 30 children in the economically depressed 1930s, but was expanded to reach 1 in 3 children by 1945.⁵⁶

A new principle of equal and universal access to basic social needs had overtaken the “residual” model of welfare that had predominated until that time, in which social provision was

⁵⁵ Patrick Joyce, “Society, State and Economy”, in United Kingdom: History, Geography, Facts and Points of Interest, *Brittanica Online* <https://www.brittanica.com/place/United-Kindgom/society-state-and-economy>, 45.

⁵⁶ Asa Briggs, “The Welfare State in Historical Perspective,” *European Journal of Sociology* 2, no.2 (1961): 234.

aimed only at the enduring class of the poorest.⁵⁷ The common war time experiences of deprivation, sacrifice and insecurity had stimulated a political appetite for a universalist “institutional” approach to social security. A 1944 White Paper on Social Insurance declared that “it is right for all citizens to stand in together, without exclusion based on differences of status, function or wealth”. A universal scheme would give “concrete expression” to the “solidarity and unity of the nation, which in war has been its bulwark against aggression and in peace will be its guarantee of success in the fight against individual want and mischance.”⁵⁸

For their part, the public, accustomed to paying higher taxes in wartime, were not unwilling to do so to cement social security in peacetime. Indeed, postwar social security was presented in a series of wartime government white papers, as a reward that citizens could look forward to in exchange for their sacrifices during the war. Meanwhile, public acceptance of a universalist social insurance system, with flat-rate contributions and no means-testing, can be attributed to the equalizing experiences of the war. Because wartime brought different classes of people together in unprecedented ways, and exposed rich and poor alike to many of the same risks and profound uncertainties, there was broad support for the kind of risk spreading proposed in Beveridge’s report.⁵⁹

⁵⁷ Hay, “The Origins of the Liberal Welfare Reforms,” 3. The differentiation between “residual”, “institutional” and “industrial achievement performance” models of welfare states was first made by Richard Titmuss in *Social Policy: An Introduction*, ed. Abel-Smith Brian and Titmuss Kay, (Allen and Unwin, London, 1974). Other scholars use different terms for these ideal types: Jorgan Goul Anderson for instance, uses the term “universalist” for the institutional model and “corporatist” for the Industrial Achievement Performance model. See J.G. Andersen, (2012). *Welfare States and Welfare State Theory*. (Aalborg: Centre for Comparative Welfare Studies, Aalborg Universitet, 2012).

⁵⁸ Cmnd 6550, quoted in Briggs, “The Welfare State in Historical Perspective,” 13.

The Post War Expansion of the Welfare State

After the Labour government came to power in 1945 it passed legislation on a host of Beveridge's recommendations for social welfare provision, including the Family Allowances Act in 1945, the National Health Service Act, the National Insurance Act and the National Assistance Act in 1946, followed by the Children Act and Housing Act of 1948 and 1949.⁶⁰ Ernest Bevin, of Atlee's Labour government, proclaimed that "Homes, health, education and social security, these are your birthright," while T.H. Marshall, who would go on to develop the theory of social citizenship, explained that whereas the previous social service policies dealt only with "the basement of society" it has now "begun to remodel the entire building."⁶¹

Because of the comprehensive scope of Britain's post-war welfare legislation and the global renown of the inspirational rhetoric contained in Beveridge's 1942 Report, the British case remains central to any history of the welfare state. Yet Britain was far from alone in developing a system of social security. Similar legislation had been passed in the USA under the

⁵⁹ John Dryzek and Robert E. Goodin, "Risk Sharing and Social Justice: The Motivational Foundations of the Post-War Welfare State," *British Journal of Political Science* 16, no. 1 (Jan., 1986): 10-12.

⁶⁰ Dryzek, and Goodin, "Risk Sharing and Social Justice," 12; Hay, "The Origins of the Liberal Welfare Reforms, 3.

⁶¹ Even the Conservative, the opposition party, embraced this new approach to social welfare, writing, in their 1949 election campaign pamphlet "The Right Road for Britain" that "the social services are no longer even in theory a form of poor relief. They are a cooperative system of mutual aid and self-help provided by the whole nation and designed to give to all the basic minimum of security, of housing, of opportunity, of employment and of living standards below which our duty to one another forbids us to permit any one to fall." Quoted in Briggs, "The Welfare State in Historical Perspective," 13.

Roosevelt administration.⁶² In fact, by the late 1940s there were few nations left on earth that had not already enacted social security legislation of some kind. Most had, like Britain, waited until the end of the war to implement or adjust and expand upon that legislation.⁶³

The widespread adoption of social insurance principles and legislation from as early as the 1920s was due, in part, to global outreach of both the International Labour Organization and the International Social Security Agency.⁶⁴ That it was fundamentally just for all national governments to create robust social security systems was further underscored in the United Nations' Universal Declaration of Human Rights in 1948. Article 22 of that document states that "Everyone, as a member of society, has the right to social security and is entitled to realization, through national effort and international cooperation and in accordance with the organization and

⁶² For Roosevelt's New Deal legislation see Patricia P. Martin and David A. Weaver, "Social Security: A Program and Policy History," *Social Security Benefit* 66, no.1 (2005). The four pillars of the New Deal legislation were: Unemployment Insurance, Social Security and Disability Insurance, the National Labor Relations Act and the Fair Labour Standards Act. Much of the legislation was not enacted until the 1940s.

⁶³ According to Daniel S. Gerig, by the time the U.S. Social Security Act was passed in 1935, some 22 European nations, as well as Australia, Chile, Japan, New Zealand, and Uruguay had broad social security systems already in place. In the period immediately preceding the Second World War there was a remarkable increase in the number of nations adopting such legislation, especially in Latin America. For a breakdown of which countries adopted social insurance or social security legislation and when please see Daniel S. Gerig, "A Quarter Century of Social Security Abroad," *Social Security Bulletin* 23, no. 8 (1960) 59-66. For Japan's social insurance history please see, World Bank "The Evolution of Social Policy in Japan," Odaka Konosuke (Washington, DC: World Bank, 2002) <http://documents.worldbank.org/curated/en/580821468042904090/The-evolution-of-social-policy-in-Japan>. For Canada, see, Antonia Maioni, "New Century, New Risks: The Marsh Report and the Post War Welfare State in Canada," in *Policy Options*, August, 2004, <http://policyoptions.irpp.org/magazines/socialpolicy-in-the-21st-century/new-century-new-risks-the-marsh-report-and-the-post-war-welfare-state-in-Canada/>.

⁶⁴ Cédric Guinand, "The Creation of the ISSA and the ILO," *International Social Security Review* 61, no. 1 (2008): 81-98. Also see Gerig, "A Quarter Century of Social Security Abroad," 60.

resources of each State, of the economic, social and cultural rights indispensable for his dignity and the free development of his personality.” Article 25 likewise declares that “Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and *necessary social services*, and *the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.*”⁶⁵

Variouly known as a social “compact”, “consensus” or “contract”, in the post war period most national governments pursued broadly similar domestic programmes, creating a set of social and economic policies that are now associated with the “golden age of the welfare state.”

⁶⁶ In Britain, and in much of western Europe, that course came to be known as the “post-war consensus” and included: an adherence to international free trade coupled with the adoption of Keynesian macroeconomic policies that could respond to the volatility of a capitalist economy and promote full employment and economic growth; a mixed economy which included both private enterprise and public ownership of certain public goods, as well as a strong regulatory framework; and a comprehensive welfare state that included social insurance, an array of social services and a safety net system for the poorest members of society.⁶⁷ A similar set of policies,

⁶⁵ UN General Assembly, “Universal Declaration of Human Rights,” Articles 22 and 25 (Paris, 1948), <http://www.un.org/en/universal-declaration-human-rights/> (accessed September 6, 2018).

⁶⁶ In the immediate post war period a parallel kind of consensus was reached in the international arena, as most industrialized nations joined in newly created international bodies overseeing global finance, trade, lending, human rights, and geopolitical security. This included the 1944 Bretton Woods agreement which involved 44 countries agreeing upon an international monetary order and an exchange rate backed by the American gold standard. This was followed by the International Monetary Fund in 1945, the World Bank and GATT (General Agreement on Tariffs and Trade- later named the World Trade Organization) as well as the Marshall Plan, NATO, Point Four (development).

pursued in the United States, is usually referred to as the “post war social contract” or the “post-war capital-labour accord.”⁶⁸

As Pierson notes, the element of agreement indicated in all of these terms refers not only to the convergence of different political parties on the above-mentioned social and economic policies, but also to a compromise made between different classes within the capitalist economy. That is, the labour class would relinquish its more radical objectives of class war or socialization of the economy while the capital class would accept “the commitment to full employment, to the public ownership of strategic utilities and support for the welfare state.” Meanwhile, the state would facilitate bargaining between the organized representatives of labour and of capital.⁶⁹ As with the post war consensus in Britain, the historical accuracy of the notion of a post war labour Capital Accord in the US has come in question.⁷⁰

⁶⁷ Christopher Pierson, *Beyond the Welfare State? The New Political Economy of Welfare* (Cambridge: Polity Press, 2006), 122-124. In recent decades the degree of consensus over these policies has been the subject of debate. See, for example Nicholas Deakin, Catherine Jones Finer, and Bob Matthews, eds. *Welfare and the State: Critical Concepts in Political Science* (Abingdon, UK: Taylor and Francis, 2004); Ben Pimlott, Dennis Kavanagh and Peter Morris, "Is the 'Postwar Consensus' a Myth?" *Contemporary Record* 2, no.6 (1989): 12-15. For recent, more general accounts of the policies of the welfare state see Pat Than, *The Foundations of the Welfare State*, (Abingdon, UK: Routledge, 2016) and Ringen Stein, *The Possibility of Politics: A Study in the Political Economy of the Welfare State*, (Abingdon, UK; Routledge, 2017).

⁶⁸ Pierson, *Beyond the Welfare State?* 124.

⁶⁹ *Ibid*, 122-125.

⁷⁰ Some scholars have pointed out that this characterization of US labour and capital relations between the late 1940s to the late 1970s seems to have emerged in the early nineteen eighties, as conditions for labour, and the power of unions began to deteriorate. Lichenstein, argues that terms such as “accord” or “compact” imply that labour and capital were on an equal footing during the post war period, when, in fact, this relationship was imposed upon the labour movement, and if anything, viewed as a defeat. See Nelson Lichenstein, *State of the Union* (Princeton: Princeton Press, 2002), 98-140, 136-7.

What cannot be doubted is that in the decades following the Second World War, national governments attempted to integrate the objectives of economic growth and social welfare. State regulation and management could minimize the social risks associated with a capitalist economy, while delivering economic growth and full employment. On the other hand, a population with access to social security, insurance and services would provide a stable environment for business while reducing the appeal of either fascism or socialism. Because they promote both social welfare and economic growth, welfare states are often referred to as “welfare capitalism.”

With the rise of neoliberalism in the early 1980s, the wisdom and practical efficacy of the welfare state became the subject of prolonged and heated debates among academics and politicians. While some of these debates may have brought attention to substantive issues of governance in a globalized and post-industrial era, there has also been a tendency on both sides of the argument to oversimplify the nature of the welfare state. As Garland points out, in political discourse especially, the Welfare state is often conflated with welfare programs aimed at the most vulnerable sectors of society. As with poor relief in the nineteenth century, stigma tends to be a central feature of such means-tested programs. Their recipients, especially in the neoliberal era, are often depicted as manipulative and undeserving, with the most extreme examples of fraudulence being held up as illustrative of a systematic abuse of taxpayers’ money. Ronald Reagan, for instance, while campaigning for presidential election on 1976, repeatedly told the story of a Cadillac-driving “welfare queen” who bilked the system of \$150,000 by receiving welfare checks under dozens of aliases. The story of the “welfare queen” was intended

to expose the wrongheadedness not only of safety net welfare provision, but of the welfare state as a whole.⁷¹

Yet, as Garland reminds us, “welfare”, or “social assistance” programs, which provide subsistence income to those without any other means of living, are only one fractional element of the welfare state. Another element involves ‘social work and personal social services’ which include services and care for children, the elderly, the mentally ill, the disabled and other particularly vulnerable groups. A much more central feature is Social Insurance, in which, as I have explained above, risks such as unemployment, health, old age, disability are pooled and covered through the compulsory contributions of all citizens. Meanwhile, a great many social services, publicly funded through taxation, are available to all citizens, such as schooling, infrastructure, healthcare, legal aid, childcare, museums and parks. Finally, the welfare state manages the economy in myriad ways, by ensuring property rights, setting fiscal, monetary, consumer credit, and labour market policies, nationalizing some industries, and subsidizing or regulating others, and managing inflation, demand and money supply. Unlike social assistance, there is much public support for social insurance, public services and economic governance, and even after decades of neoliberal policies aimed at reducing social spending, these remain unassailable features of what is still, the welfare state.⁷²

I have, of course, been discussing welfare state in general, but while the above mentioned features all tend to exist to some degree in all welfare states, there is a considerable variation from nation to nation. Aside from having different cultural values and different levels of

⁷¹ David Garland, *The Welfare State: A Very Short Introduction* (Oxford: Oxford University Press, 2016), 3, 84-86

⁷² Garland, *The Welfare State*, 46-51.

economic wealth, most states will have built their social welfare systems upon pre-existing policies and programs, so it can be said that each welfare state is unique. Scholars have tended to follow Asa Briggs and Richard Titmuss in classifying this variety into models, or ideal types. The “residual-institutional” or “liberal” model followed in Britain and most Anglophone countries tends to include modest social insurance benefits and means-tested social assistance. In Continental European countries such as France, Germany and Italy, the “corporatist-statist” or “conservative” model prevails, in which social benefits are based on contributions through employment and are more closely attached to class and status. Here the focus is on the maintenance of status differentials and traditional family roles. Finally, there is the “universalist” or “social-democratic” model predominant in Scandinavian countries. This model includes generous universalist benefits and a focus on equality.⁷³

Rather than evaluating welfare states according to their social expenditure, as some have done, Esping-Anderson asks to what extent the social rights granted by a welfare state serve to decommodify the individuals within it.⁷⁴ Social rights, in this context, play the same role as “social property” in Castel’s formulation, providing an alternative to property rights as the basis for security in modern societies. The various institutions of the welfare state limit the

⁷³ Gosta Esping-Andersen, *The Three Worlds of Welfare Capitalism*, (Princeton University Press Princeton, New Jersey, 1990), 26-27; Garland, *The Welfare State*, 64-65.

⁷⁴ In focusing on the decommodifying role of social rights, Esping-Anderson builds on a tradition of thought that includes Polanyi’s work on the rise of social protection against the commodification of land, labour and capital in the market society and T.H. Marshall’s work on the welfare state’s role in expanding the rights of citizens to include social rights including economic security. See Esping-Anderson, *The Three Worlds of Welfare Capitalism*, 21, 36-37. Also see Karl Polanyi, *The Great Transformation: the Political and Economic Origins of Our Time*, intro. by R. M. MacIver (Boston: Beacon Press, 1957) and T.H. Marshall *Citizenship and Social Class: And Other Essays* (Cambridge: Cambridge University Press, 1950).

population's exposure to the risks commonly produced in market society. This is true not only of policies that aim to redistribute wealth, or provide insurance for the sick, the disabled or the unemployed. Even many of the strategies by which states manage capitalist economies, such as regulating industries, labour policies and macroeconomic stability are aimed at protecting citizens from the abuses and volatility associated with a capitalist economy.

According to Esping –Anderson, the measure of a welfare state's decommodifying effects is the extent to which citizens can live independently of the commodification of their labour and have access to social services as a right. Thus, even when social insurance is compulsory and includes generous benefits, as in Germany, because eligibility for those benefits is tied to contributions made through one's workplace, it cannot be said that there exists an alternative to market dependence.⁷⁵ Meanwhile, in liberal welfare states, such as the UK, US and Canada, the stigmatization and means-testing of those receiving social assistance and the subsidization and promotion of private welfare schemes pushes most citizens into market participation and a reliance on private solutions for their security. The exposure to the risks attending capitalism is therefore highest for populations living in liberal welfare states, and lowest for those within the social democratic welfare states.⁷⁶

Recent scholarship on welfare states in developing nations has found that, as with developed nations, welfare states tend to cluster into three distinct models with differing degrees of decommodification. Nita Rudra classifies these as *productive*, *protective* and *dual* welfare states. Productive welfare states promote commodification by favouring economic development,

⁷⁵ Esping- Anderson, *The Three Worlds of Welfare Capitalism*, 35-37.

⁷⁶ Ibid, 21-23. See also and Garland, *The Welfare State*, 63-76.

international trade and capitalist interests over social welfare. Protective welfare states tend to resist commodification with an emphasis on domestic trade, housing and labour protections for civil servants, while dual welfare states contain a mixture of commodifying and decommodifying features. Even in the decommodifying “protective” welfare states, the reach of social services and benefits tends to be minimal, largely because proletarianization occurred after decommodification.⁷⁷ Meanwhile, the reach and substance of welfare states in developing countries has been severely limited over the last four decades by the IMF’s structural adjustment programs. After the US responded to the 1973 oil crisis by raising inflation rates, many developing countries were unable to service their debts. After the debt crisis of the early 1980s the IMF stepped in with SAPs which demanded the liberalization of markets, privatization of services and industries and severe cuts to social spending.⁷⁸ With the rise of neoliberalism states

⁷⁷ Nita Rudra, “Welfare States in Developing Countries: Unique or Universal?” *The Journal of Politics* 69, no. 2 (May 2007): 381-3. Rudra explains that, in their early post war development efforts those countries with “productive welfare states” opened their markets to international trade, while protective welfare states tended to resist commodification, focusing on internal domestic markets and policies associated with the import-substitution industrialization development model. “Productive” welfare states resemble the liberal model used in the UK and USA, in that they put fewer constraints on the market, and pursue social policies such as education, which can improve the commodity status of labour. The “protective” welfare states tend to share with the social democratic model, an aversion to commodification, while also sharing with the conservative welfare state an emphasis on authority and the preservation status differentials. But unlike both of the conservative and social democratic welfare states, where proletarianization spread to the majority of the population over a period of more than a century, the empowerment of the labour class occurred after the development of the welfare state so that social benefits tend to be limited to a “small privileged stratum.”

⁷⁸ For more on the effect of Structural Adjustment programs, neoliberalism and the Washington Consensus on the welfare state in developing countries please see United Nations, “The End of the Golden Age, the Debt Crisis and Development Setbacks,” in *World Economic and Social Survey 2017, Reflecting on Seventy Years of Development Policy Analysis* (New York: United Nations), 49. <https://doi.org/10.18356/8310f38c-en> Walden Bello, *Structural Adjustment Programs – Success for Whom? In The Case against the Global Economy*, ed. J. Mander and E. Goldsmith, (San Francisco: Sierra Club Books, 1996);

in the Global North also began to follow this set of policies, known as the Washington Consensus. However, because they were not imposed upon them, and tied to aid or debt repayment schemes, they have not been forced to carry them out to the same extreme as nations in the Global South have.

When we compare the Swedish and American welfare states, or the welfare states in the Global North and the Global South the divergences appear to be so wide that we can forget that they share anything in common. However, whatever differences they might exhibit, welfare states share a rationality of government that is distinct from all previous modes of governance. As Garland puts it, welfare states have been the product of “a new style of thinking about, and acting upon, the problems of unemployment, insecurity, and uncertainty.”⁷⁹ By reconfiguring these problems as “social risks” the welfare state, following insurantal rationality, managed to render them calculable. It “socialized processes of control and provision, organized them on a national scale and made them public responsibilities.”⁸⁰ This is a mode of governance which achieves order through what Peter Wagner calls “socialization of risk or, vice versa, the enhancement of certainty.” It does so by deploying new forms of knowledge and rules, and what this has meant, for everyday life, is,

A formalization and shaping of reality via the translation of a phenomenon into different, more operational terms....the welfare state entailed a drastic transformation of the rules

Biplab. Dasgupta, "SAP: Issues and Conditionalities: A Global Review," *Economic and Political Weekly* 32, no. 20-21 (May 17-30, 1997): 1091. Wayne Ellwood, *Debt and Structural Adjustment*. In *The No-Nonsense Guide to Globalization*, ed. Wayne Ellwood (Toronto: Between the Lines, 2002) and Joseph Stiglitz *Globalization and Its Discontents*, (New York: W.W. Norton & Co., 2002).

⁷⁹ Garland, *The Welfare State*, 54-5.

⁸⁰ *Ibid*, 56.

on which individual human beings could draw. Not least, it redefined the social space, its external and internal boundaries, on which assessment of risks was undertaken and over which relative certainties could be spread.⁸¹

The Return of Insecurity: Neoliberalism

In recent decades there has been a tendency to look back at the post war welfare state as a “golden age”, a stable social arrangement, and a standard from which we have only lately deviated. In fact, that period was short-lived, lasting only from about 1950 to 1975. The subsequent era of neoliberal retrenchment has endured for nearly twice as long!⁸² While the boom was experienced unevenly and delayed in many places, it is certainly true that by 1960 many industrialized nations were witnessing a period of impressive economic growth, high employment rates and expanded systems of social security. By 1975, however, this post war economic expansion came to an end. In 1971 US president Nixon uncoupled the US dollar from the international gold standard, effectively ending the Bretton Woods System. Then, with the OPEC oil embargo of 1973-5, the price of oil quadrupled, inhibiting industrial productivity.

⁸¹ Peter Wagner, *A Sociology of Modernity: Liberty and Discipline* (London & New York: Routledge, 1994), 98-99. By “formalization” Wagner means “a way of reinterpreting the world and re-classifying its elements with a view to increasing manageability. The achievements of modern institutions in terms of the extension of reach are regularly based on such kinds of formalization. My understanding of this term is close to Weber’s concept of rationalization, ... a belief in the knowability and, following from it, in the mastery of the world by means of calculation,” 26-28.

⁸² Nor was this entire period uniformly “golden” for all nations. In Europe alone, the 1950s were a period of deprivation for many countries. For example, in Italy in the early and mid-1950s, as in many southern and eastern European nations, the infant mortality rate was 60 per thousand live births, a rate comparable to those of Haiti, the Republic of Congo, or Burundi today. Although Britain fared better by this measurement, at 25-30 per thousand, there the rationing of food only ended in 1954. See Andrea Cornia Giovanni and Sheldon Danziger, eds, *Child Poverty and Deprivation in the Industrial Countries, 1945-1995* (Oxford: Clarendon Press, 1997), 25, 260-261.

Economic growth stagnated even as inflation soared, a unique combination dubbed “stagflation,” which resulted in high unemployment and a prolonged recession across most industrialized nations.

It was at this time that economists in the US began to question the Keynesian macroeconomic model, the welfare state and the international economic order of the post war era. Milton Friedman and others from the Chicago School of economics, as well as Austrian economist Friedrich Hayek, argued that beyond setting monetarist policies and making deep cuts to public expenditure, governments should not intervene in their economies. Neoliberalist policies were first put into practice by the Thatcher and Reagan governments in the 80s, which cut both taxes and social spending, liberalized financial trade, privatized industries and services and deregulated many elements of the economy. By the late 1980s neoliberal policies were imposed upon many developing nations as a condition of aid or debt relief.

The neoliberal embrace of free markets was at the same time a rejection of the project of re-embedding markets into societies.⁸³ Since the early decades of the twentieth century governments had attempted to protect their populations from the worst social risks created by capitalism, even if it was only in order to preserve that economic system and to prevent political revolutions. Neoliberalism was a renewal of nineteenth century laissez faire political economic thought, which centred on the self-interest of the rational individual, and a marketplace which, freed from governmental intrusion, was supposed to deliver all social goods. Thatcher’s astonishing claim in a 1988 speech that “there is no such thing as society” marked the sharp turn

⁸³ Rawi Abdelal and John G. Ruggie, “The Principles of Embedded Liberalism: Social Legitimacy and Global Capitalism,” in *Perspectives in Regulation*, ed. David Moss and John Cisternino, (Cambridge, MA: The Tobin Project, 2009), 151-2.

of liberal democracies away from the aim of social protection. The global consequences of neoliberalism have often been as devastating as they were predictable. People whose gender, nationality, ethnicity or age have placed them at the margins of global society have been the most exposed to both old and new socio-economic, political and environmental risks. The effects on the nations of the Global South have been most extreme, as however much their citizens might protest neoliberal policies, governments are constrained by the rules of IMF's structural adjustment programs and the WTO's trade regulations.⁸⁴

Meanwhile, neoliberal policies implemented in the Global North have focused primarily on reducing and restructuring social assistance and unemployment benefits, privatizing or creating public-private partnerships for social services and public industries and deregulation. As Garland, Pierson and others have noted, many of the key components of welfare states- such as social services, health insurance and pensions- are very popular with citizens of OECD nations. Thus, efforts to "roll back" the welfare state have been somewhat limited by the political risk of alienating the electorate.⁸⁵ However, retrenchment has certainly occurred in the areas of

⁸⁴ Nitsan Chorev and Sarah Babb, "The Crisis of Neoliberalism and the Future of International Institutions: A Comparison of the IMF and the WTO," *Theory and Society*, 38 (2009): 468-470.

⁸⁵ Pierson has argued that this explains the "resilience" of the welfare state, and has shown evidence of such resilience by charting the increase of aggregate social spending in OECD nations in the 80s and 90s. See Paul Pierson, "The New Politics of the Welfare State," *World Politics* 48, no. 2 (1996): 143-179, 144. For others who have argued that the welfare state is "resilient" or "steady" see Garland, *The Welfare State*; Francis G. Castles, *The Future of the Welfare State: Crisis Myths and Crisis Realities* (Oxford: Oxford University Press, 2004); and Clem Brooks and Jeff Manza, *Why Welfare States Persist. The Importance of Public Opinion in Democracies* (Chicago and London: The University of Chicago Press, 2007) Others, however, have argued that aggregate social expenditure does not take into account the impact of changing employment or demographic conditions on such spending, nor does it show how "individual life chances are shaped by welfare policies." See Lea Elsässer, Inga Rademacher and Armin Schäfer, "Cracks in the Foundation: Retrenchment in Advanced Welfare State," *Economic Sociology: The European Electronic Newsletter* 16, no. 3 (July 2015): 4-16, 5-6. Other scholars have tried to

social assistance, and unemployment insurance. For example, in their recent study of 20 OECD countries, Elsässer et al, found that “Without exception, all countries spent less on income support for the working-age population in 2008 than they did at some point in the past, and in eight out of 20 countries spending in 2008 was lower than in 1980.”⁸⁶ Labour market policies in the neoliberal era have re-stigmatized welfare assistance for those who do not qualify for unemployment insurance by subjecting recipients to greater discipline and surveillance, while cutting benefits to levels insufficient for subsistence. Meanwhile it is now more difficult to meet the eligibility criteria for unemployment and the amount and duration of benefits have been reduced, and are now conditional upon stringent job search evidence.⁸⁷

In the post war period governments tended to apply their social and macroeconomic policies towards the goal of full employment, while labour market policies acted as a buffer, shielding citizens from full exposure to the insecurities that came with a loss or lack of income.⁸⁸ By the 1990s these efforts were supplanted by new objectives: attracting capital investment and preventing inflation. Full employment was no longer a priority. According to Rueda, labour market policies now began to focus on “activation” “conditionality.” Because the traditional

measure welfare state generosity by calculating “net replacement rates” for those whose income has been lost or interrupted (through age, sickness, unemployment etc). Their work has shown that the “degree of decommodification of risks” for individuals in a data set of 18 countries had been reduced between the years of 1975 and 1999. See James P. Allan and Lyle Scruggs, “Political Partisanship and Welfare State Reform in Advanced Industrial Societies,” *American Journal of Political Science* 48, no. 3 (2004): 496–512.

⁸⁶ Elsässer, Rademacher and Schäfer, “Cracks in the Foundation,” 8.

⁸⁷ David Rueda, “Unemployment, Labor Market Policy, and Inequality in the Age of Workfare,” *Comparative Politics* 47, no. 3 (2015): 300.

⁸⁸ Rueda, “Unemployment,” 298.

welfare state was viewed as “passive”, responding after the fact to social risks such as unemployment, the idea of “activation” was that the state would prevent such risks from forming in the first place, by developing human capital through skills training, and getting people back into the labour market. To achieve this, the option of government benefits had to be made as undesirable as possible, and was made conditional upon either participation in skills retraining or the acceptance of any available jobs.⁸⁹ The priority of pushing unemployed workers into the labour market was reflected in the neologisms that emerged in the 1990s: in the US and the UK, “welfare” became “workfare” while in Canada, “*employment* insurance” replaced “*unemployment* insurance.”

On the surface, getting workers back to work and investing in human capital both seem to align with the goal of full employment. However, the nature of work has changed in the post-industrial “knowledge” economy. The greatest number of jobs are now found in the service sector, and of these, there are far more low-wage, part time and temporary jobs than there are quality jobs. The last few decades have revealed the structural nature not only of unemployment, but also of underemployment and precarious work. Over the last 25 years, income inequality has risen consistently, as both the quantity and quality of available work has declined. Since the 1990s the watchword of neoliberal labour market policy has been “flexibility”, an inadvertently candid term for the bending of labour to the needs and whims of employers. It has been in order to attract industry in a competitive globalized economy, that governments themselves have bent over backwards to offer labour markets that are “flexible” about wages, hours, conditions and job security.

⁸⁹ Ibid, 297-299.

After decades of such labour market policies the trend towards more precarious employment is undeniable. For instance, a 2015 CIBC report on Canadian employment trends found that, since the 1980s, part-time work grew at much faster rate than full time work; between 1990 and 2015 the numbers of self-employed workers rose even more steeply while low wage full time jobs grew at twice the rate of high paying jobs. It is not only the lower wages, fewer hours, short term contracts or lack of benefits that make such “non-standard” work “precarious.”⁹⁰ Union representation is also far less likely in such forms of employment. As the proportion of Canadians eligible for unemployment insurance benefits has steadily decreased, ever more workers have been pushed into a market in which they have relatively little bargaining power. This is not at all the same as a commitment to full employment. It is simply a way of attracting investment capital and cutting social insurance and safety-net spending. In fact, in recent years Ontario’s EI funds, into which all workers contribute, have been in surplus. Rather than altering the criteria in order to make more than 36% of Ontarians eligible for unemployment benefits,

⁹⁰ Dominique Fleury, “Precarious Employment in Canada: An Overview of the Situation,” Hillnotes: Research and Analysis from Canada’s Library of Parliament, Aboriginal Affairs and Social Development, (January 27, 2016)), <https://hillnotes.wordpress.com/2016/01/27/precarious-employment-in-canada-an-overview-of-the-situation>. According to Fleury, The International Labour Organization defines precarious employment as “a lack or inadequacy of rights and protection at work. This definition can apply to informal work, but also to several types of formal work, including subcontracting, temporary contracts, interim work, self-employment and involuntary part-time work.... These types of formal employment are considered more precarious, because they are associated with reduced financial security and stability stemming from lower wages on average, less access to benefits such as private pension plans and complementary health insurance, as well as greater uncertainty about future employment income. These types of jobs are also associated with poorer physical and mental health outcomes.”

politicians have chosen to channel the surplus into lower EI premiums and other taxes. Similar trends have been noted in almost all OECD nations.⁹¹

The neoliberal solution to the problem of unemployment has been to “create jobs” by appealing to the interests of industry. Faced with conditions such as a scarcity of full time quality work; conditional, and often exclusionary unemployment insurance systems, and deterrent social assistance programs, labour is forced to make itself available for the least tolerable or remunerative positions. If this response to economic insecurity seems redolent of the New Poor Laws discussed earlier in the chapter, that is because neoliberalism is literally a revival of nineteenth century liberalism and its emphasis on unregulated markets and the commodification of labour. In fact, the neoliberal “recommodification” of labour been accompanied by a renewed interest in and debate about the New Poor Laws among historians. Conservative historians, such as Gertrude Himmelfarb, sought to reintroduce “Victorian Values” like self-reliance, and private charity, while others debated the motives and impact of the New Poor Laws, in the shadow of contemporary neoliberal reforms of the welfare state.⁹²

What has this revival of a more fundamentalist liberal political rationality meant for the state’s role as the primary risk manager in modern societies? As new conditions have arisen,

⁹¹ Fleury, “Precarious Employment in Canada.”

⁹² See, for example, Gertrude Himmelfarb, *The Idea of Poverty: England in the Early Industrial Age* (New York: Vintage Books, 1984); *On Looking into the Abyss: Untimely Thoughts on Culture and Society* (New York: Random House, 1994); *The De-Moralization of Society: From Victorian Virtues to Modern Values* (New York: A.A. Knopf, 1995). Also see Peter Mandler, “The Making of the New Poor Law Redivivus,” *Past and Present* 117, no.1 (1987): 131-157; Anthony Brundage and David Eastwood, “The Making of the New Poor Law Redivivus,” *Past and Present* 127 (1990): 183-194; and George Boyer, “Malthus was Right after All: Poor Relief and Birth Rates in Southeastern England,” *Journal of Political Economy* 97, no. 1 (1989): 93-114.

such as globalization, deindustrialization and post-fordism, has the model of the state as “a great benefit society” or “insurance society” become obsolete? Before moving on to consider these questions I think it is important to remember that in its role as modern risk manager, the welfare state has always had a strong partner in the private insurance industry. Not only do these partners interact closely on many levels, but together they have shaped how people live in modern society, their everyday encounters with regulation and surveillance, how they think about risk and uncertainty and their expectations for the future.

The Insurance Industry since the Post-war Period

By almost any measurement, the insurance industry is a dominant feature of the global capitalist economy. Since the turn of the century, notwithstanding the upheavals of 9/11, the Indian Ocean Tsunami of 2004, Hurricane Katrina in 2005 and the global financial crisis of 2008, the global written premiums for the industry have averaged US \$ 3.85 trillion annually.⁹³ In fact, gross annual premiums have nearly doubled since 2000, from 2.49 trillion to 4.7 trillion in 2016. Insurance now generates nearly as much annual profit as the global food industry. Globally, three times as much is spent on insurance as is spent on defense.⁹⁴ The industry constitutes 6.23% of the Global Gross Domestic Product and from 5 to 10% of the GDP of most developed nations,

⁹³ Swiss Re Institute, *Sigma*, 3 (2017), <http://www.sigma-explorer.com/>. For the year 2017, Swiss Re. reports that “Overall, global insurance premiums increased 1.5% in real terms to nearly USD 5 trillion in 2017,” see Daniel Staib, and Mahesh H Puttaiah, “World Insurance in 2017: Solid but Mature Life Markets Weigh on Growth,” *Sigma*, 3 (July, 2018). <https://www.swissre.com/institute/research/sigma-research/sigma-2018-03.html>

⁹⁴ Luis Lobo- Guerrero, *Insuring Security: Biopolitics, Security and Risk* (Abingdon: Routledge, 2011).

especially those in the OECD.⁹⁵ Meanwhile, market penetration in developing and emerging economies has been growing steadily in recent decades.⁹⁶ Insurance is also a major employer and a major source of investment capital in most advanced economies.⁹⁷ But beyond the sheer size of the industry, it is the ubiquity of insurance, its presence in multiple social institutions and cultural discourses, which gives it an indisputable sway over modern lives.

Governments and Insurance: Partners in Risk Management

Historically, the insurance industry has been a vigorous opponent of government initiatives for socializing risk. In the post war period, as nations developed and expanded upon social insurance and benefits for their populations, the industry lobbied to protect their existing or potential market share against government encroachment.⁹⁸ While the industry did grow at a slower rate

⁹⁵ Sajid Mohy, Ul Din, Arpah Abu-Bakar, and Angappan Regupathi, “Does Insurance Promote Economic Growth: A Comparative Study of Developed and Emerging/ Developing Economies,” *Cogent Economics & Finance* 5, no. 1 (2017): 1. Accessed at <https://doi.org/10.1080/23322039.2017.1390029>; Patrick M. Liedtke “What’s Insurance to a Modern Economy?” *The Geneva Papers on Risk and Insurance- Issues and Practice* 32, no. 1 (2007): 211–221, 213.

⁹⁶ Lukas Junker, Samuel Gerssen and Marlous Jutte “Global Insurance Industry Insights: an In Depth Perspective” *McKinsey Global Insurance Pools*, 4th edition (McKinsey & Company, 2014), 2.

⁹⁷ In 2016 2.6 million people were employed in the insurance industry. See “facts and statistics: industry overview” Insurance information Institute, <https://www.iii.org/fact-statistic/facts-statistics-industry-overview>. Meanwhile the CEA (the European Insurers’ Trade Association) estimates that one million people in its member countries are directly employed by the industry, with another million employees in jobs connected to the industry. Patrick Leidtke, “What’s Insurance to the Modern Economy,” 215.

⁹⁸ For an account of the relations established between public and private systems of social provision during the development of Canadian health insurance and pensions programs please see Gerard W. Boychuk and Keith G. Banting “Rethinking the Divided Welfare State: the Role of Private and Public Benefits in the Development of Pensions and Health Insurance in Canada” Paper presented to the Canadian Political Science Association, Ottawa, Ontario, May 2009. Also see Boychuk and Banting, “The Canada Paradox: The Public-Private Divide in Health Insurance

during the 1950s and 1960s than it did in subsequent decades, it cannot be said that it was significantly constrained by the emergence of the welfare state. Indeed, the intention from the beginning, especially in welfare states that would come to be classified as “liberal”, was that “State provision was to run parallel with, rather than to displace private insurance.” Deployed together, they would “form the twin pillars of social security.”⁹⁹ Just where the lines dividing public and private insurance have been drawn in each nation is the result of whichever conditions prevailed during the legislation of different social policies: which political party reigned at the time and what kind of relationship it had with the insurance industry or other industries that might be effected by the legislation; the compromises that had to be made between different regions, states or provinces and any number of economic, political and cultural factors constraining or shaping a nation’s priorities at that time.¹⁰⁰

and Pensions,” in *Public and Private Social Policy*, ed. Daniel Béland and Brian Gran, (London: Palgrave Macmillan, 2008). For a more general account of the global insurance industry, including the “relinquishment” of some of its areas of business to governments in the post war period please see Peter Borsheid and Neils Viggo Haueter, “Global Insurance: The Global Expansion of the Concept of Modern Insurance,” *European Financial Review*, Dec. 2, 2012, <https://www.europeanfinancialreview.com/global-insurance-the-global-expansion-of-the-concept-of-modern-insurance/>.

⁹⁹ Knights and Vurdubakis, “Calculations of Risk,” 757.

¹⁰⁰ Boychuk and Banting have highlighted the role that such factors played in the shaping of the Canadian pensions plan and universal health insurance scheme in the 1960s. In Ontario, for instance, the private pension industry had a much larger presence than in other provinces. Added to this, the Conservative party- which had close ties to the industry- was in power at the time. Thus, when the Liberal Federal Government sought to introduce a contributory pension plan, it began to revise its initial plan to make room for the private pension industry, in order to gain Ontario’s assent to the federal plan. However, when Quebec came forward with a much more generous and redistributive plan, one that other provinces saw as a model, the Federal government revised its plan in the other direction. Meanwhile when the Federal government attempted to introduce universal health insurance under Medicare, the opposition of those provinces with the highest levels of private insurance benefits were overruled in the interests of creating greater national solidarity, for, as Canada neared its centennial celebrations in 1967,

In “liberal” welfare states like Canada, the government “carefully left room for the private sector to grow.”¹⁰¹ There are two principles means by which the state, in such regimes, “encourages the market.” First, it does so passively, by guaranteeing only minimal social provisions, thus driving all but the neediest citizens to seek market based or charitable forms of social protection. Secondly, it more actively favours private welfare systems, including the insurance industry and its consumers, with substantial tax subsidies.¹⁰² According to Esping-Anderson, the growth of the private welfare market was largely enabled by the state. In the case of private pensions, for example, they “required the application of state power to build and nurture a viable private market. *In turn, the state's role in furnishing pensions has been decisively shaped by the nature and limits of markets*” Thus, “political power and the cash nexus have interacted continuously to manufacture the peculiar blend of social provision that goes into defining welfare-state regimes.”¹⁰³

While the state’s promotion of private sector insurance –and other forms of private welfare – has been more marked under neoliberal governments over the last four decades, welfare states have always contained some degree of complementarity between private insurance and state social provision. One reason for this, and for the state’s willingness to subsidize private insurance, is that the two systems address the risk of income insecurity through different modes of distribution and funding. Social insurance redistributes risks across income classes and relies

nation-building was a major priority. Boychuck and Banting, “Rethinking the Divided Welfare State,” 97-9.

¹⁰¹ Ibid, 95.

¹⁰² Esping-Anderson, “The Three Worlds of Welfare Capitalism,” 26-7.

¹⁰³ Ibid, 79.

upon the principle of solidarity to build its fund, while private insurance redistributes risk across each person's life span and relies upon actuarial principles to finance its operations.¹⁰⁴ But social insurance is not the only component of the state with which private insurance engages in a mutually beneficial relationship. Indeed recent sociological analysis of insurance as an institution reveals that insurance is a sort of hub through which almost all other social institutions and functions vital to a modern state are connected.

Analysis of the insurance industry has until quite recently been confined to the fields of economics and law as well as actuarial and other literature produced within the industry itself. Such literature can be invaluable for those seeking to understand the dynamics of insurance, its role in the modern economy, its intersections with law and its relevance for pressing global issues.¹⁰⁵ However, a more comprehensive approach to the "vast set of enterprises known as insurance."¹⁰⁶ was largely absent until the publication of a groundbreaking sociological treatment of the industry in 2003. In *Insurance as Governance* Erickson, Doyle and Barry

¹⁰⁴ Benjamin W. Veghte, "Welfare State," *International Encyclopedia of the Social Sciences*, Encyclopedia.com. 3 Feb. 2018, <http://www.encyclopedia.com>. For a detailed account of the often overlooked relationship between public and private social provision in welfare states please see Martin Rein and Lee Rainwater, eds. *Public/Private Interplay in Social Protection: A Comparative Study* (Armonk, NY: M. E. Sharpe, 1986).

¹⁰⁵ One important resource for current thinking from within the industry but also for knowledge which bridges with that of other social and economic institutions is *The Geneva Papers on Risk and Insurance*. The quarterly journal was created in 1973 by the Geneva Association, an international think tank for "strategically important insurance and risk management issues." Naturally, some of the literature produced from within the industry is opaque to outsiders, while traditional economic and legal scholarship touching on insurance and risk tend to be informed by the natural sciences (statistical methodologies, cognitive psychology, and number of fields in engineering and science) and focus on cost benefit analyses and "behavioural law and economics" approaches.

¹⁰⁶ Jonathan Simon, "Risk and Reflexivity: What Socio-legal Studies add to the Study of Risk and the Law," *Alabama Law Review*, 57 (2005): 119.

painstakingly unravel the cultural, political, economic, legal and other functions through which insurance and the state are entwined, demonstrating that insurance is *the* institution for governance beyond the state.¹⁰⁷

Insurance and the Economy

First, there are a number of financial and economic reasons why the insurance industry is indispensable to the state. Most simply, as a massive industry it is a major source of both tax revenue and revenue stemming from regulation.¹⁰⁸ Insurance companies are also major investors in the government itself. The accumulation of a surplus is essential to insurance, not only in order to profit but in order to guarantee a fund sufficient for paying out claims. Insurers accumulate this surplus by investing in an array of financial instruments; foremost among these are Government bonds and securities which are particularly safe avenues of investment.¹⁰⁹ At

¹⁰⁷ Richard V. Ericson, Aaron Doyle, and Dean Barry (Eds.) *Insurance as Governance*, (Toronto: University of Toronto Press, 2003). There were a several key historical, philosophical and sociological works dealing with risk and or insurance that came before the “insurance and governance” literature. In 1985, sociologist Carol Heimer explored the role of moral hazard in *Reactive Risk and Rational Action: Managing Moral Hazard in Insurance Contracts* (Berkeley: Univ. of California Press). In 1986 Françoise Ewald, a student of Foucault, applied Foucault’s concepts of bio-politics and governmentality to the study of insurance in *L’Etat Providence*, (Paris: Grasset, 1986). In the same year, Ulrich Beck first published his *Risikogesellschaft*, (Frankfurt; Suhrkamp, 1986), first published in English as *Risk Society: Towards a New Modernity* (London: Sage, 1992). In 1990 Anthony Giddens’ *The Consequences of Modernity* (Cambridge: Polity Press, 1990) dealt with the role of risk in the modern social order but not with insurance. Major contributions to study of risk and insurance from the socio-legal perspective have come from Tom Baker, “Insurance in Sociolegal Research,” *Annual Review of Law and Social Science*, 6 (2010): 433; Nicholas Rose, *Powers of Freedom: Reframing Political Thought* (Cambridge: Cambridge University Press, 1999); Theda Skocpol, *Protecting Soldiers and Mothers: The Political Origins of Social Policy in the United States* (Cambridge, MA: Harvard University Press, 1992); and Viviana A. Zelizer, *Pricing the Priceless Child: the Changing Social Value of Children* (Princeton, NJ: Princeton University Press, 1985).

¹⁰⁸ Erickson, Doyle and Barry, *Insurance as Governance*, 7.

the same time, as Leidtke points out, because the funds acquired by insurers tend to be linked to long term contracts, the investment of that money has a long term and thus stabilizing presence in financial markets and the economy as a whole. Insurance also acts as a buffer in times of volatility by indemnifying the financial losses of those it covers. By preventing individual and corporate bankruptcies, insurance provides enough certainty for economic actors to continue planning and taking risks. In such an environment people are less likely to bind their savings to instruments that shield them from capital markets and more likely to invest them as productive capital.¹¹⁰ In this way insurance “stimulates investment and consumption by reducing bound capital,” transforming “dormant capital into free capital.”¹¹¹ Added to all of this is the not insignificant fact that insurers cover losses that the state would otherwise have to compensate.¹¹²

Insurance therefore “plays a special role underpinning the growth of an economy.”¹¹³ While that role is now played in a much more complex economic and financial context, it is essentially continuous with the role insurance played in the coffeehouses of London in the early eighteenth century, when merchant ship owners transferred to insurers the risk of loss or damage to their vessels on trading adventures. Now, as then, insurance is the rooting mechanism that secures the freedom to risk adventure. Insurance underwrites risk taking in capitalist society. And just as in the mid-twentieth century states developed social insurance systems in order to

¹⁰⁹ Ibid, 7, 46; Also see Leidtke, “What’s Insurance,” 215.

¹¹⁰ Leidtke, “What’s Insurance,” 216-217; and Ericson, Doyle and Barry, *Insurance as Governance*, 5.

¹¹¹ Leidtke, “What’s Insurance,” 216.

¹¹² Ericson Barry and Doyle, *Insurance as Governance*, 46.

¹¹³ Ibid, 46.

maintain social solidarity and political stability and to forestall revolution or collapse of liberal society and economy, the insurance industry maintains the functioning of key social institutions and systems, and promotes ongoing economic growth by stabilizing the economic system. Insurance thus attempts to bracket the insecurity that inevitably accompanies the dynamism of capitalism.

But it isn't only with regard to the economy that insurance acts as a sort of fungible, portable root system, keeping actors' feet on the ground even as they fly off into new and risky terrain. Or, to put it another way, because capitalism pervades every aspect of society, insurance accompanies it everywhere. Thus, As Ericson et al point out, "Insurance companies interlock with other powerful corporations and the state to negotiate political economy on all levels of society. Insurance also governs other institutions through its powers of transferring and distributing risks. It strongly influences how institutions structure their environment, how they produce, take and manage risks." ¹¹⁴

To understand just why insurance is so central not only to institutions but also to everyday life in modern societies we must remind ourselves of the difference between uncertainty and risk discussed at the beginning of this chapter. Risk, is a calculation, a measurement of the probability of an event. Uncertainty lies outside of that calculation. One might say that risk is the enclosure and management of future possibilities by probabilistic knowledge and classification, while uncertainty is more akin to the waste lands that lie outside of the enclosure boundaries, all that is so far unknown, unnamed, and uncalculated. Insurance, which arose alongside, though not originally in strict relation to, probabilistic knowledge, is the

¹¹⁴ Ibid, 4.

institution that objectifies uncertainties, converting them into probabilities of risk. Insurance companies apply their own expert knowledge, the science of actuarialism, to entire populations in order to predict and classify the risks attending nearly every activity and event in modern life. It then finds a price for and arranges for the transfer or distribution of each risk. Since it is so “often the precondition for (economic) action and it is intertwined with the most basic human needs and aspirations,”¹¹⁵ insurance has thus been closely bound up with capitalism and the commodification of ever more spheres of life.¹¹⁶

Insurance and Law

Insurance is also “embedding in law.” Insurance is legal, Ericson et al explain, primarily because “It objectifies risk by making it subject to contract and adjudication and at the same time it helps the law assign liability for loss to the party most able to distribute loss through insurance.”¹¹⁷ Not only does insurance have its own body of law (which regulates the business practices of insurance, the content of its policies and its handling of claims), but it interacts with several aspects of both public and private law as well. It is most closely associated with tort law, a branch of civil, private law, in which legal liability for harms is determined.¹¹⁸ While some

¹¹⁵ Leidke, “What’s Insurance,” 220.

¹¹⁶ Ericson, Doyle and Barry, *Insurance as Governance*, 48. “Insurance cannot recover or repair loss or damage in themselves, but (it can at least provide some certainty that capital will be there to repair whatever damage can be expressed in monetary terms. This means that everything, whether person or property, is commodified for insurance purposes.”

¹¹⁷ Ibid, 48.

¹¹⁸ Tom Baker, "Insurance and the Law," *University of Connecticut School of Law Articles and Working Papers*, no. 5 (2002) http://lsr.nellco.org/uconn_wps/5. 5-6.

scholars see its role in tort law as nearly overpowering in its influence, especially in its capacity to distribute losses, others have pointed to the principles of contract law underpinning insurance law and, related to this, the influence of insurance on commercial law.¹¹⁹ Meanwhile, insurance is most obviously connected to public law in its social or public sector variants, where it is overseen by administrative law. But private insurance also plays a role in shaping public law. According to Shauhin Talesh, “insurance companies respond to laws in ways that end up influencing the meaning of law, not just in insurance companies’ own legal environment, but also among public legal institutions such as courts, legislatures, and administrative agencies.”¹²⁰

¹¹⁹ The argument that insurance’s distributive logic has had an ideological effect on tort law, which undermines tort law’s restorative form of reparation was made by Jane Stapleton in a well-known article in the *Modern Law Review*. See Jane Stapleton, “Tort Insurance and Ideology,” *Modern Law Review* 58 (1995): 820. Tom Baker has also noted the ideological and practical impact of insurance (particularly liability insurance) upon tort law over the last 100 years. See Baker, “Law and Insurance,” 7. However, Jenny Steele has argued that this emphasis on insurance’s distributive effects overlooks the broader connections between insurance and private law, particularly its contractual principles. See Jenny Steele, “Tort, Insurance and the Resources of Private Law” in *Torts in Commercial Law*, ed. S. Degeling, J. Edelman and J. Goudkamp, (Sydney: Thomson Reuters, 2011). Jens O. Zinn, meanwhile, reminds us of “the contractual, indeed commercial nature of much insurance law” in *Social Theories of Risk and Uncertainty: An Introduction* (Malden MA: Blackwell Publishers, 2008), 200- 201. For more on the relationship between tort, contract and insurance see Kenneth Abraham, *The Liability Century: Insurance and Tort Law Reform from the Progressive Era to 9/11* (Harvard University Press, Cambridge, 2008.)

¹²⁰ Shauhin Talesh, “A New Institutional Theory of Insurance,” *University of California Irvine Law Review* 5, no.3 (2015): 619. Talesh illustrates how the insurance industry can shape public law from the “bottom up”, with the example of Employment Practice Liability Insurance. Beginning in the 1990s a few insurance companies began to market this new product to employers wanting coverage for the legal risk presented by anti-discrimination employment law. Insurance companies promote EPLI by amplifying the legal and litigation risks faced by employers who fall afoul of civil rights legislation. They offer indemnification for punitive damages and require clients to complete the insurance company’s risk management programs – most of which are aimed less at rooting out discriminatory behavior than they are at minimizing liability via formalized managerial procedures that may be announced but not necessarily followed. Talesh notes that by 2015 more than 70 Insurance companies in the US offered EPLI, and most large companies, and many mid-sized companies now hold such policies. Government

Insurance as Social Regulator

Beyond the formal sphere of the law, the insurance industry also has as a powerful regulatory effect throughout society, especially in recent decades, as states have sought to divest themselves of their responsibilities for risk management. As Tom Baker notes, “because insurance institutions inevitably exert a regulatory force over their subjects, insurance must be understood as a complement to direct state regulation” but also as a “crucial form of (delegated) state power.”¹²¹ The terms outlined in insurance contracts, and the differential pricing that reflects different risk profiles require policy holders to comply with certain standards of behavior. In fact, Baker says, “exclusions and conditions written into coverage for property, life, and health amount to a form of private legislation.” Moreover, because this legislation pertains to behavior and conditions in the privacy of one’s home or business, it penetrates areas that were once off limits even to the sovereign authority of Kings!¹²² Ericson, Doyle and Barry likewise note that, despite its roots in the law of contract, insurance “operates beyond the law of contract.” It “operates beyond the law because its systems affect the minutiae of everyday routines across society”¹²³

bodies have also followed suit. Insurance therefore has actively shaped the legal meaning of compliance with civil rights legislation. See 626-632.

¹²¹ Baker, “Insurance and Law”, 1- 5.

¹²² Ibid, 5.

¹²³ Ericson, Doyle and Barry, *Insurance as Governance*, 50. They further suggest that because of its ability to penetrate of all aspects of social life “insurance exemplifies what Foucault called ‘counterlaw’ in that it provides a basis for social organisation that simultaneously underpins and escapes legal regulation.” Meanwhile Baker argues that the insurance contract is unlike other forms of contract, in that the bargaining power between the two parties, insurer and insured is unequal, and because people do not always enter into such contracts voluntarily. Thus “insurance contracts have long been regarded as the paradigmatic contract of adhesion and, to

The regulatory power of insurance is exerted through both its “abstract technology” and its “imaginary,” the ways, according to Ewald, that such technology is found to be “profitable, useful and necessary...in a given social context.”¹²⁴ Insurance technology, which involves gathering, analysing and classifying data on risk patterns in populations, gives insurance an informational advantage over many other regulatory bodies. According to Ben-Shahar and Logue, insurance “develops templates to regulate behaviour in ways that are potentially more finely tuned and information-sensitive than some forms of government control.”¹²⁵ The efficacy and reach of actuarial techniques have thus been imported by all sorts of institutions, “from police departments to social service agencies and money management,” which have adapted to their purposes insurance’s probabilistic and demographic interpretation of social reality.¹²⁶ The efficacy and efficiency of the insurantal approach to social regulation is such that even tasks which were once the purview of criminal justice are now being passed on to insurance companies.¹²⁷

the extent that the adjudication of insurance disputes has developed the law regarding contracts of adhesion, this might be regarded as another effect of insurance on law.” See Baker, 10.

¹²⁴ In his Foucauldian analysis of insurance, Francoise Ewald clarified its multiple meanings and manifestations by dividing the phenomenon of insurance into four different categories: its institutions, its abstract technologies, its forms and its imaginaries. Francoise Ewald, “Insurance and Risk” in *The Foucault Effect: Studies in Governmentality*, ed. Graham Burchell, Colin Gordon and Peter Miller, (Chicago: University of Chicago Press, 1991), 199-202.

¹²⁵ Omri, Ben-Shahar and Kyle D. Logue “Outsourcing Regulation: how Insurance Reduces Moral Hazard,” *Michigan Law Review*, 111 (2012): 201.

¹²⁶ Baker “Insurance and Law,” 8.

¹²⁷ Sharyn L. Roach Anleu, “The Role of Civil Sanctions in Social Control: a Socio-legal Examination,” *Crime Prevention Studies*, 9 (1998) 21. This “general Movement away from the criminal justice system’s monopoly on formal social control for some offences has been termed

Insurance companies often have greater resources than government agencies to employ the most advanced tools for gathering and analysing data. But they are also effective regulators because they operate in a competitive environment. To attract clients they must offer lower premiums, which can only be achieved by reducing the risks of their policyholders, thereby reducing the number claims that must be paid out.¹²⁸ Thus, before accepting applications for policies, companies demand detailed information on applicants' risk characteristics, details which are then verified by experts in relevant professions. Those who are too "risky" are refused coverage, and if information is withheld in the application process, claims can be excluded. Meanwhile, they also have a host of both deterrent and incentivizing schemes for policy holders, such as deductibles, "feature rating" and "experience rating" which target and audit the risk-related behavior of each policy-holder, and adjust premiums accordingly. Insurers also shape behaviours by "coaching" clients on safety and loss prevention through risk management programs that come with reduced premiums.¹²⁹ In fact, Insurance is often at the forefront of risk prevention, innovations and new knowledge in multiple fields, from fire safety and regulations in the nineteenth century to epidemiology, public health and medical innovations today.¹³⁰

decarceration, informalism and privatization." Roach Anleu notes that there is now a general expectation that people insure themselves against the risk of victimization, and conform to risk reducing behaviors, especially in the area of property crime. This "growing reliance on probability, opportunity reduction and loss prevention signals a trend toward an insurance or actuarial model of social control. See 23, 35.

¹²⁸ Ben-Shahar and Logue, "Outsourcing Regulation," 201.

¹²⁹ Ibid, 201-212.

¹³⁰ Baker, "Insurance and Law," 3; and Tom Baker and Jonathan Simon, eds., *Embracing Risk: the Changing Culture of Insurance and Responsibility* (Chicago: University of Chicago Press, 2010), 8.

Private insurance companies are also innovators in the use of surveillance techniques, employing the latest in “information technology, expertise and private policing” to gather relevant data on their clients.¹³¹ Surveillance has become a crucial component of insurance because the discovery of information that contradicts claims made by policyholders can be used not only to avoid paying-out claims but also to reduce the overall risk levels in the insured population, since awareness of the insurer’s surveillance capabilities cautions all policyholders to behave with rectitude.¹³² The regulatory scope of surveillance has become all the more extensive in recent decades with the explosion in digital information technology. Since the early 2000s there has been a massive increase in the volume and complexity of data sets that can be stored. This phenomenon, called “Big Data,” has allowed insurance companies to extend and deepen their surveillance at little cost. For example, a number of insurance companies have begun to offer “pay as/how you drive” policies which adjust premiums according to data on driving behavior obtained from a blackbox or smartphone app placed within a person’s car.¹³³

¹³¹ Ericson, Barry and Doyle, *Insurance as Governance*, 52.

¹³² The irony, Ericson, et al, point out is that while insurance companies treat policyholders with suspicion throughout the relationship, the knowledge and organization of the insurance system is so abstract that policy holders themselves have little choice but to place their trust in insurers, 52.

¹³³ Torben Iverson and Philipp Rehm, *The Market for Creampuffs: Big Data and the transformation of the Welfare State* (Cambridge MA: Harvard University Press, 2016). For an account of such policies in Canada see Jacqueline Nelson, April 2, 2014, updated March 25, 2017, “Insurers Promise Discounts to Drivers Who Allow In-Car Monitoring “ in *The Globe and Mail*, <https://www.theglobeandmail.com/globe-drive/culture/technology/insurers-see-profits-in-driving-data/article17782343/> Also see NAIC (National Association of Insurance Commissioners) “Usage-Based Insurance and Telematics” in The Centre for Insurance Policy and Research, Feb, 06, 2018, http://www.naic.org/cipr_topics/topic_usage_based_insurance.html.

Of course, such advanced and targeted forms of surveillance are not exclusive to the insurance industry. Rather, insurance should be seen as a major component in what Ericson and Haggerty have called a *surveillant assemblage*, in which “a multitude of organized surveillance systems” now coordinate their efforts by “abstracting human bodies from their territorial settings and separating them into a series of discrete flows. These flows are then reassembled into distinct ‘data doubles’ which can be scrutinized and targeted for intervention.”¹³⁴ The convergence of what were once discrete surveillance systems belonging to say, the police, or the insurance industry or government organizations, means that data on monitored populations is more easily accessed beyond institutional boundaries than ever before.¹³⁵ According to Ericson, Barry and Doyle, insurance exemplifies, “the tendency of liberal risk regimes to widen and deepen surveillance as a normal part of operations. The search for better knowledge of risks and the populations subject to them is incessant and perpetuates itself.”¹³⁶ The result has been that across liberal risk regimes – in both state and private organizations - regulatory bureaucracy continues to expand, so that some scholars have even suggested that ours is a “regulatory society” as much as it is a “risk society.”¹³⁷

¹³⁴ Kevin D. Haggerty and Richard V. Ericson, “The Surveillant Assemblage,” *British Journal of Sociology* 51, no. 4 (December 2000): 605-6.

¹³⁵ For example, Haggerty and Ericson note that “police organizations have secured routine, and often informal, access to a host of non-police databases, such as those from insurance companies and financial institutions.” See 616.

¹³⁶ Ericson, Barry and Doyle, *Insurance as Governance*, 53.

¹³⁷ For a review of the rise of “the regulatory state,” and its relationship with the risk society please see Christine Parker and John Briathwaite “Regulation,” in *The Oxford Handbook of Legal Studies*, ed. Mark Tushnet and Peter Cane, (Oxford: Oxford University Press, 2005. For an interesting discussion of the relationship between the risk society and the regulatory society, as a colonizing process please see Henry Rothstein, Michael Huber, and George Gaskell, “A

Finally, Insurance functions as a moral regulator. As a “moral technology,” Insurance steers the behaviour of its populations in much the same direction it did in the nineteenth century.¹³⁸ Then, as I recounted above, Assurance companies’ promotional pamphlets enjoined the working classes to think of the future for the sake of their families by practising habits of thrift and self-reliance, and company agents even visited the homes of policy-holders on a weekly basis in order to assess and improve their spending habits. While policyholders would not tolerate such home visits today, insurers use other, less direct – but perhaps more effective – means of weeding out risky or careless behavior. But for all the advances in the tools used by insurance companies to regulate the behavior of policyholders, the objective is continuous with that of nineteenth century insurers: that individuals must learn to become the primary risk managers in their own lives. As Ewald puts it, the moral technology of insurance guides the insured towards compliance with,

A morality whose cardinal virtue is providence. To provide for the future does not just mean not living from day to day and arming oneself against ill fortune, but also mathematizing one's commitments. Above all, it means no longer resigning oneself to the decrees of providence and the blows of fate, but instead transforming one's relationships with nature, the world and God so that, even in misfortune, one retains responsibility for one's affairs by possessing the means to repair its effects.¹³⁹

Meanwhile, the reach of this moral injunction of self-responsibility is not limited to policy-holders but extends to any and all who, inevitably, encounter Insurance marketing in its many forms. And because the imperative to “take the future into your own hands” is part of the

Theory of Risk Colonisation: The Spiralling Regulatory Logics of Societal and Institutional Risk,” *Economy and Society* 35, no.1 (February 2006): 91.

¹³⁸ Ewald uses this term, as do Knights and Vurdubakis.

¹³⁹ Ewald, “Insurance and Risk,” 207.

wider culture of neoliberalism, and indeed, western individualism, the message is continually reinforced from all sides.

The Cultural Footprint of Private Insurance

By guiding insured populations towards responsible risk management, private insurers are also helping to shape the culture of modern societies. The promotion of individual responsibility is one of several ways in which insurers and states tend to collaborate ideologically according to Ericson, Barry and Doyle. States, they maintain, have become focused on minimizing their responsibility for risks, and thus have been begun encouraging individuals to seek “market based security product consumption.”¹⁴⁰ Increasingly, the promotion of individual responsibility for risk refers not just to prudential or risk-adverse behaviour but also to risk taking, or risk embracing behaviour.

Risk Embracing:

For O’Malley, the embrace of risk in recent decades is less a dramatic shift away from the risk-spreading logic that dominated the twentieth century as it is the renewal of a second element in the risk discourses of nineteenth century liberal government. That is to say, the well-known emphasis on prudence and foresight in nineteenth century insurance and risk discourses was often accompanied by an emphasis on the rewards that can come from engaging with uncertainty, especially in entrepreneurial activity.¹⁴¹ Simon and Baker have also conceived of

¹⁴⁰ Ericson, Barry and Doyle, *Insurance as Governance*, 361.

¹⁴¹ Pat O’Malley, “Uncertainty Makes us Free”: Liberalism, Risk and Individual Security," *BEHEMOTH-A Journal on Civilisation* 2, no. 3 (2009): 24-30. O’Malley explains that what has re-emerged is the full Benthamite conception of the relationship between security and freedom, wherein security promotes and nurtures foresight, not only to forestall the losses that

risk-spreading, the typical logic of insurance, as just one of “two related cultural trends,” the second being a “reaction against spreading risk,” wherein individuals are incentivized to embrace and take responsibility for risks.¹⁴²

The embrace of risk is apparent across the culture, from the popularity of extreme sports to the promotion of gambling activities such as lotteries and casinos by governments.¹⁴³

Gambling in financial markets has also had a growing appeal since the nineteen eighties. A “mass investment culture” has arisen, in which ordinary people, encouraged by tales of fortunes made, have begun to invest in the stock market with the fervour of those who flocked to the California goldfields in the nineteenth century.¹⁴⁴ This trend has coincided with the liberalization, deregulation and increasingly abstract activities of financial markets as well as the blurring of the boundaries between insurance, banking and financial services.¹⁴⁵

might occur in an uncertain future, but also to take advantage of the opportunities that it might afford. For Bentham, O’Malley argues, the right kind of security acts as a foundation for planning, and for a subject that is free, not only in the “negative” but also in the “positive” sense. The right kind of security included property rights and contract law. According to O’Malley, “The contractual basis of insurance made the uncertain future less uncertain..., by rendering some things directly calculable and ...guaranteed by law.” It also made foresight “a legally enforceable duty owed to others” and the “practical and moral duty of every citizen....a form of calculative attitude that was to pervade the everyday life of liberal subjects.” Foresight, then, was not merely understood as a defensive posture taken against an uncertain future, but also as a means of imagining the possible.

¹⁴² Simon and Baker, *Embracing Risk*, 1.

¹⁴³ Ericson, Doyle and Barry, *Insurance as Governance*, 38-39.

¹⁴⁴ Ibid, 1, and Paul Langley, “The Making of Investor Subjects in Anglo-American Pensions,” *Environment and Planning D: Society and Space*, 24 (2006): 920.

¹⁴⁵ According to Ericson, Doyle and Barry, “The four relatively autonomous pillars of financial institutions-banks, insurance companies, trust companies, and credit unions- are collapsing.” Meanwhile, “banks are making incursions into the insurance industry” and the

According to Ericson et al, the risk embracing discourse is particularly present in private insurance as a form of governance beyond the state. Embedded in its “institutional routines, classification systems, (and) information systems” this discourse corresponds with the general “movement toward private market alternatives for insurance and security provision.”¹⁴⁶ Individuals are now expected, “as participants in fast moving and fluctuating markets” to “become educated, knowledgeable, reflexive risk takers...each individual is to be her own political economy, an informed, self-sufficient consumer of labour markets, personal security markets and other consuming interests.”¹⁴⁷

Perhaps most illustrative of this recent turn towards risk-embracing, is what has happened to pension plans over the last three decades. In most advanced economies the responsibility for pensions has steadily shifted from the state and employers, to individuals, and from the “defined benefit” model (guaranteed, fixed benefits to be received after working age) towards a “defined contribution” model (defacto investment portfolios, with uncertain benefits).¹⁴⁸ The positive

“acceleration of mergers and acquisitions in all industries also characterizes the insurance industry.” See Ericson, Barry and Doyle, *Insurance as Governance*, 45-6.

¹⁴⁶ Ibid, 35.

¹⁴⁷ Ibid, 36.

¹⁴⁸ As Impavido and Tower explain, in a defined contribution pension “the value of retirement benefits depends only on the level and timing of contributions as well as their compounded rate of return in the individual accounts during the working life. In traditional DC pension plans, contributors are often responsible for choosing plan managers, asset allocation and fully bear the investment risk. See Gregorio Impavido and Ian Tower, “How the Financial Crisis Affects Pensions and Insurance and Why the Impacts Matter,” in *International Monetary Fund Working Paper* 9, no. 151 (International Monetary Fund, 2009), 6. According to the OECD, this shift from DB to DC pensions (and “the shift in risk... from governments and financial institutions to households”) has been a global trend. Individuals are increasingly responsible for making investment decisions, however surveys have shown they do not understand the complexities of investments, and particularly in defined contribution pensions.

spin on this development is that individuals now have control over investment decisions that were once the responsibility of insurers, employers and professional investors and that by tying pension benefits to financial markets, individuals can expect greater returns to ease their retirements.¹⁴⁹ The danger of such arrangements should be obvious to anyone with a historical sense of the volatile behaviour of financial markets.¹⁵⁰

Along with the state and other financial institutions, private insurers have encouraged individuals to invest in capital markets and consume the private security products offered by the financial services industry.¹⁵¹ For Langley, public participation in ever more marketized forms of

“An important trend in many countries has been the rise in the number of workers participating in defined contribution plans. Yet it is clear that many of the workers in these plans, faced with the responsibility for investing their retirement contributions, need help.” 106. For this reason the OECD strongly recommends prioritizing financial education. Please see OECD, "Financial Education and Saving for Retirement: Why Financial Education is Needed for Retirement Saving", in *Improving Financial Education and Awareness on Insurance and Private Pensions*, (Paris, OECD Publishing, 2008), 103.
<http://dx.doi.org/10.1787/9789264046399-16-en>,

¹⁴⁹ Baker and Simon, *Embracing Risk*, 3-4; and O'Malley, "Uncertainty Makes Us Free," 35; Castel notes that, (the right to a pension is the "clearest manifestation" of social property, whereby "there is a direct transfer of wages to security through the intermediary of obligatory insurance." In an era when work (the source of contributions to this sort of insurance) is ever more scarce and precarious, and where an aging demographic narrows the risk pool of contributors, it is no wonder that pensions were among the first to be reformed. See Castel, "Emergence and Transformations of Social Property," 327-330.

¹⁵⁰ The exposure to risk faced by individuals with pensions tied closely to financial markets was made apparent with the 2008 Global financial crisis. According to Impavido and Tower, "Private pensions in OECD countries reported US\$4 trillion losses in asset values in the first 10 months of 2008. Pension funds in OECD countries have experienced on average a negative return of nearly 20 percent in nominal terms (22 percent in real terms) since the beginning of the year (see Figure 7). Most of the loss is accounted for by pension funds in the United States (US\$2.2 trillion out of the total OECD loss of 3.US\$3 trillion) due to their larger than average exposure to equity risk." See Impavido and Tower, "How the Financial Crisis Affects Pensions and Insurance," 19.

security and insurance has been facilitated by a discourse that constitutes its subjects as entrepreneurial investors.¹⁵² Particularly with regard to the changes to Anglo-American pensions, this “investor subject” is targeted in multiple campaigns, from doomful reports that government pensions cannot be sustained for an increasingly aging demographic to the promotion of financial literacy in schools, self-help books and websites and governmental pension guides.¹⁵³ By advising individuals on how to be astute participants in financial markets, states and financial institutions have normalized the expectation that individuals “provide for their financial futures,”¹⁵⁴ and surrender their reliance on social protection for their post-employment years.

If we consider the risk-embracing discourse deployed by both states and insurers in relation to Castel’s theory of “social property” and Esping-Anderson’s use of “decommodification” in assessing welfare states, it is apparent this discourse and its attendant practices have eroded social protections intended to minimize exposure to the risks of the market. For Castel, social property was an alternative means of granting the right to security to non-property owners, which became possible with the application of insurantal risk spreading

¹⁵¹ Sean French and James Kneale, “Excessive Financialisation: Insuring Lifestyles, Enlivening Subjects, and Everyday Spaces of Biosocial Excess,” *Environment and Planning D: Society and Space* 27 (2009): 1030.

¹⁵² Langley, “The Making of Investor Subjects,” 919. French and Kneale, exploring the way that an evolving insurance industry has contributed to this trend in the “financialization of everyday life” have suggested that in addition to Langley’s “investor subject,” there has emerged an “insurantal subject”, the target market of new products and developments in health insurance and annuity markets which centre on lifestyle. See French and Kneale, “Excessive Financialisation,” 1030-1032.

¹⁵³ Langley, “The Making of Investor Subjects,” 925.

¹⁵⁴ Ericson, Barry and Doyle, *Insurance as Governance*, 37.

across society. The right to a pension is, he maintains, “the clearest manifestation” of social property, whereby “there is a direct transfer of wages to security through the intermediary of obligatory insurance.”¹⁵⁵ In an era when work (the source of contributions to this sort of insurance) is ever more scarce and precarious and when an aging demographic narrows the risk pool of contributors, it is no wonder that there has been a push to privatize and individualize responsibility for pensions.¹⁵⁶ As Esping-Anderson noted, when social rights to services and protections have “the legal and practical status of property rights” and are “granted on the basis of citizenship rather than performance” the result is “a loosening of the pure commodity status” of “individuals vis-à-vis the market.”¹⁵⁷ While many of the social rights granted through the welfare state remain, others are being withdrawn as protections like pensions are ever more reliant on participation in the market. The discourses of risk embracing and individual responsibility for risk, promulgated by states, insurers and other financial institutions have had the cultural effect of normalizing and moralizing this recommodification of human needs.¹⁵⁸

Risk Consciousness and the Hypermarketing of (In)security

Another cultural trend given considerable momentum by the insurance industry and closely corresponding with the discourses of risk-embracing and individual responsibility for risk, has

¹⁵⁵ Castel, “Emergence and Transformation of Social Property,” 327.

¹⁵⁶ *Ibid*, 327-330.

¹⁵⁷ Esping-Anderson, *The Three Worlds of Welfare Capitalism*, 21-22.

¹⁵⁸ As Baker and Simon note, considering the significance of the changes made to pensions over the last few decades in the US it is surprising that the subject has not been a matter of much public discussion. See Baker and Simon, *Embracing Risk*, 4.

been the heightened consciousness of risk and security throughout society. Whether it is the abundance of media attention given to risk related issues in health, technology and the environment, or the “hypermessaging of financial security products,” risk is an ever present feature in our cultural landscape. As Ericson et al note, the ubiquity of risk and insecurity are demonstrated in the 24 hour cable news programs, which place scrolling “real-time financial market trading indices over cheap, wire-fed disaster news items from anywhere that augment both a sense of insecurity and the need for security.”¹⁵⁹ The collapsed space and the hyper-immediacy with which such media present risk related information induces in audiences a visceral anxiety about the future. Exposure to ever more knowledge of risks has had the effect of increasing the cultural perception of insecurity and powerlessness in societies that, by many indicators, are safer and less exposed to risks than ever before.¹⁶⁰ As Krahan notes, if we think of risk as a discourse, “instead of being (exclusively) the result of the material transformation of ‘real’ dangers, the defining feature of the risk society becomes its obsession with risk.”¹⁶¹

¹⁵⁹ Ericson, Barry and Doyle, *Insurance as Governance*, 38.

¹⁶⁰ Measures such as life-expectancy and infant mortality data, for instance, suggest that we have become increasingly sheltered from many of the risks that have long bedeviled human populations. In the conclusion to this chapter I further discuss the paradox of heightened insecurity in spite of indications of improved security. On the increasing public perception of insecurity see Peter Taylor-Gooby, “Risk Governance and Public Trust,” 2018, 2. <https://www.kent.ac.uk/scarr/events/beijingAb/TaylorGooby>. Gabriel Mythen, *Understanding the Risk Society: Crime, Security and Justice*, (London: Palgrave-McMillan, 2014), 3.

¹⁶¹ Elke Krahan, “The Commodification of Security in the Risk Society,” *School of Sociology, Politics, and International Studies, University of Bristol Working Paper*, no. 6-8 (2008), 9. <http://bura.brunel.ac.uk/handle/2438/9667>. For example, In *The Risk Management of Everything* Michael Power remarks that “Not only private sector companies, but hospitals, schools, universities and many other public organisations, including the very highest levels of central government, have all been invaded to varying degrees by ideas about risk and its

Insecure populations make for ideal markets. Businesses across nearly all sectors of the economy are able to present their products as security enhancing, from health foods, to smart phones and alarm systems.¹⁶² Risk – and the products and services intended to manage it- is a big business and, the growth of risk related industries seems to have been proportionate with the degree that private insurers and states have downloaded responsibility for risk management onto individuals and corporations. As I mentioned in the above section on insurance and regulation, risk reduction is essential to the survival of insurers in an ever more competitive industry. Thus, risk reduction programs and risk-management services are often built into insurance contracts for businesses. In the last 30 years, risk-management services have swelled into an industry, a profession studied in colleges and an essential component of both corporate governance and public organizations.¹⁶³

But risk and security discourses and the market in security and risk management products and services did not emerge simply as a result of cynical attempts to profit off of a culture of fear. Rather, as Ericson et al note, private insurers and states share the goal of collective security, and these “collective security needs are imagined through discourses of insecurity. Insecurity is based on knowledge of risk as danger and on the fears generated by that knowledge.” Thus “the rational knowledge of probability calculation not only allays fears but also accentuates them because risk is always surrounded by uncertainty.”¹⁶⁴ That uncertainty is never vanquished, in

management.” Michael Power, *The Risk Management of Everything: Rethinking the Politics of Uncertainty* (London: Demos, 2004), 9.

¹⁶² Power, *The Risk Management of Everything*, 4.

¹⁶³ Ibid, 37. Also see B.M Hutter, “The Role of Non-State Actors in Regulation” in *The Centre for Analysis and Risk Regulation, Discussion Paper*, no.37 (April, 2006) 1-2.

¹⁶⁴ Ericson, Barry and Doyle, *Insurance as Governance*, 47.

part because the future cannot ever be fully known, but also because the ceaseless quest for knowledge of risks always uncovers more unknowns to be objectified, calculated and commodified, requiring ever more actions and knowledge to prevent and insure against risks. This ongoing conversion of uncertain events into objects of calculation places upon us a burden of responsibility for the future that generates anxiety. Like modernity's quest for reform, improvement or progress, the project of risk management is never completed. The reflexivity of modernity means that knowledge is always questioned, and new knowledge always sought, so that the objectives of certainty and security can never be reached.¹⁶⁵ As Defert puts it, "each new measure of protection makes visible a new form of insurable insecurity...security can become an inexhaustible market, or alternatively, an impulse toward a motive for ever more interventionist political action."¹⁶⁶

Because the insurance industry is so intertwined with other major social institutions such as law, the economy, and government, it has had an enormous influence in making risk a central

¹⁶⁵ Beck, Giddens and Lash introduced the idea of "reflexive modernization" to describe the way that our knowledge and control over nature and society have themselves come into question, as we attempt to deal rationally with the risks that science and technology have manufactured. See Ulrich Beck, Anthony Giddens, Scott Lash, *Reflexive Modernization: Politics, Tradition and Aesthetics in the Modern Social Order* (Cambridge: Polity Press, 1994). For a discussion of reflexive modernity and its relationship with the Risk Society please see Mahmoud Eid, "Reflexive Modernity and Risk Society," *International Journal of the Humanities*, 1 (2003): 813. If, as Beck contends, this reflexivity emerges in relation to the risks produced by industrial modernization, the relationship between modernity and reflexivity is not new. Doubt or critique of received ideas has been characteristics of modernity from its earliest historical periods. Agnes Heller, as I noted in the introduction, describes modernity as founded upon doubt, and with each new foundation intended to replace a discredited one, doubt returns to deconstruct it. See Agnes Heller, *A Theory of Modernity* (Hoboken, NJ: Wiley, 1999).

¹⁶⁶ Daniel Defert, "'Popular Life' and Insurance Technology," in *The Foucault Effect: Studies in Governmentality*, ed. Graham Burchell, Colin Gordon and Peter Miller (Chicago: University of Chicago Press, 1991): 211-234, 215.

preoccupation of late modern society. Yet, the proliferation of risk discourses, perceptions of insecurity and of products and services for managing risk over the last three decades is only the most recent example of how risk and insurance have shaped the modern response to an uncertain future. Over the last two centuries the charge of overseeing the unfolding of the future has been transferred from Providence to friendly societies, to private insurers and the state, and now, ever more so, to individuals. This downloading of responsibility for risk management has corresponded with the continual advancement of techniques for governing at a distance, from censuses and statistics to Big Data and smartphones.

Conclusion

Over the last three chapters, I have traced the development of techniques for governing at a distance (the census, statistical and actuarial knowledge) and the application of those techniques to the management of risks across populations. In the nineteenth century, private insurers, friendly societies and government social policies used different approaches to manage or mitigate the risks of certain target populations, such as skilled tradesmen, industrial labourers, the middle class, or the poor. In the twentieth century we saw states take a leading role in managing the risks of their citizens through the development of ever more comprehensive social insurance systems, while the private insurance industry grew in complexity and size, becoming indispensable to economy and governance of liberal polities. With the neoliberal restructuring of social and economic policies over the last three decades, states have progressively downloaded their risk management responsibilities onto individual citizens and private sector insurance and security providers. Private insurers have likewise found ways to transfer to their policy-holders much of the responsibility for managing risks.

Individuals are now expected to act as the risk managers of their own lives. On the face of it, such an expectation is not so outrageous. We might be forgiven for asking “why shouldn’t people be responsible for the risks in their lives?” But, aside from the fact that many of the greatest risks faced by individuals are not within their personal control, this question neglects to consider that risk is a relatively novel concept in human history. Before the nineteenth century, with the exception of a few probability theorists, ship-owners and stock jobbers, the various threats and dangers that people encountered in the course of their lives were not considered objects of calculation, contract, exchange or management. Instead, a fire, a famine, a stillborn baby, or an injury at work were all considered events beyond human control or reason, elements of the great unfolding of a Divine will. It could never have been easy to accept that Divine will, but the attempt to accept it would have reaffirmed the notion that some aspects of our lives were subject to an external source of control and meaning. By contrast, the management of risks - whether it is shouldered by states, corporations, individuals, or some combination of all three, as is the tendency today - is expressive of a worldview in which all events, even the unknown events of an uncertain future, are ultimately subject to human control.

Is there a purpose to knowing and controlling ever more of the uncertain terrain of the future? Whether that behaviour is entirely purposive or not, I will consider in the concluding chapter below, but I think it can reasonably be interpreted as an attempt to banish uncertainty, to restore order and security, to shelter ourselves from exposure to the winds of chance. Security is certainly the ostensible purpose of insurance. But the question I wish consider in closing this chapter, is whether insurance, and risk management generally, have succeeded in making us more secure?

In some ways we have never been safer: never have so many contingencies been foreseen and prevented – or made compensable. Across the world- with few exceptions- life expectancy has never been higher.¹⁶⁷ And in the Global North especially, it is a fairly rare occurrence these days for people to die from housefires, surgeries, or childbirth. Even deaths from cancer are on the decline.¹⁶⁸ Such improvements did not just happen. They are the result of two centuries of concerted efforts to minimize the threats to life faced by populations. And those efforts succeeded because patterns in populations could be determined through the collection and analysis of data, and because with the rise of insurance entire systems of risk identification, prevention, regulation, liability and compensation were created.

So, yes, managing risks, knowing and controlling ever more of the future, has made our lives more secure. And yet, as I have indicated in the preceding sections, some recent developments reveal a clear trend towards insecurity. In a post-fordist, post-industrial economy, further shaped by neoliberal policies like deregulation, work has become more “precarious.” With the rise of contract or temporary work and the relative decline in the power and presence of unions, fewer jobs- in both high and low skilled occupations- come with the benefits that previous generations relied upon to supplement a loss of income due to disability, injury, illness,

¹⁶⁷ Colin J. Bennet, Kevin D Haggerty, David Lyon and Valerie Steeves (eds), “The Rise of Security Culture,” in *Transparent Lives, Surveillance in Canada: The New Transparency Project*, (Alberta: Athabasca University Press, 2014). Also see Taylor-Gooby, “Risk Governance and Public Trust,” 1, and Aaron Doyle, “Introduction: Trust, Citizenship and Exclusion in the Risk Society,” in *Risk and Trust: Including or Excluding Citizens*, ed. Law Commission of Canada, (Halifax, NS: Fernwood Publishing, 2007), 8.

¹⁶⁸ Stacey Simon, Jan. 25, 2017, “Cancer Facts and Figures: Death Rate down 25% since 1991” *American Cancer Society*, <https://www.cancer.org/latest-news/cancer-facts-and-figures-death-rate-down-25-since-1991.html>.

maternity, unemployment or retirement. Meanwhile, the Social Insurance benefits provided through governments have become increasingly difficult to access, while pensions- a vital right to social property in a capitalist society- have increasingly been tied to financial markets.

And then there are the ubiquitous expressions of insecurity apparent in cultures of the Global North, in spite of the highly regulated nature and comparative safety of such societies. As I mentioned above, the insurance industry has played a role in raising the cultural consciousness of risk and in the marketing of security products. But what is most interesting about the fears and insecurities evident in popular culture is that they often do not correspond with what are empirically the most dominant threats to security. For example, the above mentioned trends towards economic insecurity appear to get far less public attention than a host of other perceived risks that are less likely to occur, or likely to affect fewer people but that speak to our deep-seated cultural anxieties.¹⁶⁹

Since Americans are more likely to die from falling furniture than they are from a terrorist attack, and far more likely to die driving to the airport than from a plane crash, why do

¹⁶⁹ Barry Glassner noted this phenomenon in his 1999 book *The Culture of Fear*, pointing out that in the mid-1990s when the number of American's covered by unemployment insurance was shrinking, wealth inequality at a record high, and many Americans suffered from food insecurity, people reported rising crime has their greatest concern, even though evidence showed it had steadily been declining for decades. See Barry Glassner, *The Culture of Fear: Why Americans are Afraid of the Wrong Things* (New York: Basic Books, 1999), 65. The tendency for the public's perceptions of risks to diverge greatly from scientific or probabilistic evaluations of risk has been interpreted by social scientists in a number of different ways, from the individualistic, "rational choice theory" to constructivist and structural theories among sociologists, post-modern and cultural theorists. Renn discusses the range of interpretations in Ortwin Renn, *Risk Governance: Coping with Uncertainty in a Complex World* (London; Sterling, VA: Earthscan, 2008), 15-23.

their fears and anxieties seem to suggest otherwise?¹⁷⁰ Why, do people appear to be more concerned about the risks of artificial sweeteners such as aspartame than they are about regular processed sugars? While decades of extensive studies have not found that the former present any significant risks to the high majority of people, the overconsumption of the latter is known to be a major contributor to obesity, diabetes and heart disease.¹⁷¹ Why do a majority of Canadians report that they think violent crime is on the rise when it is at a historical low?¹⁷²

There are a number of explanations for this phenomenon of “misfearing.”¹⁷³ First, risk is as much about subjective perceptions as it is about rational probability. And there are political and economic actors who stand to gain (power, media ratings, product sales) by highlighting some kinds of risk over others. Media, as well as political and marketing campaigns, mine data

¹⁷⁰ Harold Mass, “The Odds Are 11 Million to 1 that You’ll Die in a Plane Crash,” in *The Week*, (July 8, 2013), theweek.com/articles/462449/odds-are-11-million-1-that-you’ll-ide-plane-crash; Andrew Shaver, “You’re more likely to be fatally crushed by furniture than killed by a terrorist” in *The Washington Post*, Nov. 23, 2015. http://www.washingtonpost.com/news/monkey-cage/wp/2015/11/23/youre-more-likely-to-be-crushed-fatally-by-furniture-than-killed-by-a-terrorist/?utm_term=.ed763404a91c

¹⁷¹ Andre Picard, “The Complicated Truth about Aspartame,” *The Globe and Mail*, Dec. 22, 2013. <https://www.theglobeandmail.com/...complicated-truth...aspartame/article16069158/>.

¹⁷² Jake Edmiston, “Canada’s Inexplicable Anxiety over Violent Crime,” *National Post*, Aug. 4, 2012. <http://nationalpost.com/news/canada/canadas-inexplicable-anxiety-over-violent-crime>.

¹⁷³ This term was first used by professor of jurisprudence Cass R. Sunstein, for when people “fear things that are not dangerous, and they do not fear things that impose serious risks.” See Cas R. Sunstein, “Misfearing: a Reply,” *Harvard Law Review*, 119 (2005): 1110; and Cass R. Sunstein, *The Laws of Fear: Beyond the Precautionary Principle*, (Cambridge and NY: Cambridge University Press, 2005).

sources in search of psychological hot spots that can be triggered by presenting information about particular risks.¹⁷⁴

While it might appear that the public are inevitably fixated on risks that are more dramatic and exotic, I think the more meaningful characteristic common to popular fears is their relation to situations or processes that are in one way or another beyond the knowledge and control of the average person.¹⁷⁵ This lack of control is the common thread linking fears as diverse as airplane crashes, the randomness of violent crime or terrorist attacks, and the unfamiliar chemical content and processes that go into food additives. A great deal of this sense of having no control comes from our almost complete reliance on abstract systems and expert knowledge.¹⁷⁶ Anxieties about genetically modified crops or contaminated foods or medicines are not just reflective of the “manufactured” risks produced by scientific and technological advances, as highlighted by Beck. They also stem from the situation of individual consumers who find themselves unable to act with true agency in what are massive global systems of

¹⁷⁴ The role of media, marketing and politics in shaping the public fears is discussed in Glassner, *The Culture of Fear*, 62-68. Also see Martin Kuška, “New Sources of Fear in a Late Modern Society: The Globalization of Risk” in *Reconstructing Emotional Spaces: From Experience to Regulation*, ed. By Radek Trnka, Karel Balcer, Martin Kuska, (Prague: Prague College of Psychosocial Studies Press, 2011); See 105, 113-115; and F. Furedi, *The Culture of Fear Revisited* (London: Continuum Press 2007), 45-53.

¹⁷⁵ Renn, *Risk Governance*, 20-21.

¹⁷⁶ Ericson, Barry and Doyle, *Insurance as Governance*, 52-3, Doyle, “Trust, Citizenship and Exclusion in the Risk Society,” 9-10.

production. Similarly, scares about the effect of vaccinations or fluoridated water reflect a distrust of biomedical, scientific and governmental power.¹⁷⁷

This loss of trust in scientific knowledge, technological processes, and global systems of production intersects with a decline in the legitimacy of all sorts of previous forms of authority.¹⁷⁸ The pluralistic nature of late modern societies accelerates modernity's dynamic of endless critique. Thus, according to Furedi, evaluations of risks and questions about their causes "are complicated by the fact that Western societies possess a weak sense of shared meaning and therefore often lack a consensus about how to attribute blame and responsibility. The absence of consensus means that the link between cause and negative outcome is continually contested"

¹⁷⁷ On the link between distrust in government and distrust in vaccinations please see Gustavo S. Mesch and Kent P. Schwirian, "Confidence in Government and Vaccination Willingness in the USA," *Health Promotion International* 30, no. 2 (June 2015): 213. <http://doi.org/10.1093/heapro/dau094>. And this is not a new phenomenon. A lack of faith in both science and government and its expression in resistance to government public health campaigns can be seen as early as the nineteen forties in the case of anti-fluoridisation movements and as early as the 1850s in the case of anti-vaccination movements. See for example, Catherine Carstairs and Rachel Elder "Expertise, Health and Popular Opinion: Debating Water Fluoridation, 1945-80," *The Canadian Historical Review* 89, no. 3 (Sept, 2008): 345. <http://doi.org/10.3138/chr.89.3.345>. Also see Nadja Dirbacj, *Bodily Matters: the Anti-Vaccination Movement in England: 1853-1907*, (Durham and London: Duke University Press, 2005) and Gregory A. Poland, M.D. and Robert M. Jacobson, M.D., "The Age-Old Struggle against the Antivaccinationists," *The New England Journal of Medicine* 364, no.2 (Jan. 2011): 97-99, DOI: 10.1056/NEJMp1010594.

¹⁷⁸ Taylor-Gooby, "Risk Governance and Public Trust," 3-4. The relationship between risk, trust and the abstract systems of modernity has been discussed at length by Anthony Giddens in *Modernity and Self-Identity: Self and Society in the Late Modern Age*, (Cambridge: Polity Press, 1999), 133-137, and *The Consequences of Modernity*, 79-111. Also see Niklas Luhmann, *Risk* (Berlin; New York: Walter de Gruyter, 1993); Aaron Doyle, "Introduction: Trust, Citizenship and Exclusion in the Risk Society," 7-22.

leading to “speculation, rumours, and mistrust. As a result, events often appear as incomprehensible and beyond human control.”¹⁷⁹

In recent decades there has been a heightened sense that we have reached the limits of human control over the risks we face. A host of “new social risks” have arisen which appear to be of an unprecedented magnitude, and which some, such as Beck, argue are beyond calculation or containment. Beck focused primarily on environmental risks as the unforeseen side effects of scientific and technological advances made during the industrial phase of modernity. But there are other ‘new’ risks of equal magnitude that are produced not by industrialization, but by the deeper logic animating both capitalism and modernity: the drive to contain and control the unfolding future of nature and society, as is illustrated in the management of risk. A series of global crises intersect with the risks associated with climate change: the forced migration of ever more people fleeing political violence, environmental devastation and poverty; global terror networks which have arisen in response to the effects of colonialism, imperialism, globalization and geopolitical conflicts; and the increasingly speculative nature of financial capitalism, which resulted in the 2008 global financial crisis.¹⁸⁰

¹⁷⁹ F. Furedi, “Precautionary Culture and the Rise of Possibilistic Risk Assessment,” *Erasmus Law Review* 2, no. 2 (2009): 201.

¹⁸⁰ Ben Doherty, “Climate change will fuel terrorism recruitment, report for German foreign office says,” *The Guardian*, April, 19, 2017, <https://www.theguardian.com/environment/2017/apr/20/climate-change-will-fuel-terrorism-recruitment-adelphi-report-says>. Also see Peter Schwartzstein, “Climate Change and Water Woes Drove Isis Recruiting in Iraq” in *National Geographic*, Nov. 14/2017. <https://news.nationalgeographic.com/2017/11/climate-change-drought-drove-isis-terrorist-recruiting-iraq/> ; Ulrich Beck, “World Risks Society, Revisited,” *Theory, Culture & Society* 19, no.4 (2002): 39; James, Crotty, “Structural Causes of the Global Financial Crisis: a Critical

The Beckian argument that these sorts of risks are beyond calculation or containment suggests that we have arrived at a point of radical insecurity. Our efforts to control and contain the risks of an uncertain future seem to have led us to a place where we have no control. While some may see this as a devastating blow for civilization, humanity, and the project of modernity, others see it as a long-awaited opportunity to begin again with something different, or at the very least, to seriously question the present order. Many see the crisis of climate change as a chance – because our backs are against the wall- to depose the rule of capitalism and to restore our relationship with nature.¹⁸¹ In the same way, some political scientists and philosophers, observing the protracted nature of the refugee crisis, and identifying the nation state system as its root cause, have advocated for the opening of borders.¹⁸² Finally, the global financial crisis of

Assessment of the ‘New Financial Architecture,’” *Cambridge Journal of Economics* 33, no. 4 (2009): 563. <https://doi.org/10.1093/cje/bep023>; and Natascha van der Zwan; “Making Sense of Financialization, *Socio-Economic Review* 12, no. 1, (January 2014): 99. <https://doi.org/10.1093/ser/mwt020>.

¹⁸¹ See, for example, Hans A. Baer, *Global Capitalism and Climate Change: The Need for an Alternative World System* (Lanham, Maryland; Rowman Altamira, 2012); Mark Pelling, David Manuel-Navarrete, and M. R. Redclift, *Climate Change and the Crisis of Capitalism: a Chance to Reclaim Self, Society and Nature* (Abingdon UK: Routledge, 2012).

¹⁸² See for instance, Selya Benhabib, *The Rights of Others: Aliens, Residents and Citizens* (Cambridge: Cambridge University Press, 2004) and “Cosmopolitanism and Democracy: Affinities and Tensions,” *The Hedgehog Review* 11, no. 3 (2009); David Held, *Cosmopolitanism: an Agenda for a New World Order* (Cambridge: Polity Press, 1995) and “Principles of the Cosmopolitan Order,” in *The Political Philosophy of Cosmopolitanism*, ed. Harry Brighouse and Gillian Brock (Cambridge: Cambridge University Press, 2005): 10. See Joseph H. Carens, “Aliens and Citizens: the Case for Open Borders,” *The Review of Politics* 49, no. 2 (Spring, 1987): 251.; and “Open Borders and the Claims of Community,” *APSA 2010 Annual Meeting Paper*, 2010, <https://ssrn.com/abstract=1642718>, and Lee Trepanier & Khalil M. Habib, eds., *Cosmopolitanism in the Age of Globalization: Citizens Without States* (Lexington, KY: University Press of Kentucky, 2011).

2008, encouraged some to hope that capitalism had finally destroyed itself, and that a saner system might be fostered in its place.¹⁸³ Although I admire those who acknowledge the root causes of these interrelated crises, and share the hope that the compulsive character of capitalism and modernity has finally driven us to “hit bottom” so that we might find a saner way of living, there is not yet much evidence that we have reached that point. That is to say, despite the magnitude of these crises, we continue to approach environmental, political and financial ‘risks’ through a risk management model.

Beck first argued in the 1980s that the risks faced in this phase of modernity are beyond calculation. Yet we now have three decades of evidence that these “new” risks are indeed subject to calculation. According to Ericson et al, theorists who suggest that ever more risks are uninsurable, “not having studied the insurance industry, fail to appreciate that it will insure just about anything. Insurers gamble, trying to manage any fallout through a variety of pricing, claims control, financial risk redistribution and investment strategies.”¹⁸⁴ Climate change, for example, does present extraordinary challenges to the insurance industry, but that does not mean

¹⁸³ See for example, David Harvey, *17 Contradictions and the End of Capitalism* (Oxford: Oxford UP, 2014); Paul Mason, *PostCapitalism: A Guide to our Future* (London: Allen Lane, 2015); and Wolfgang Streeck, *How Will Capitalism End: Essays on a Failing System* (London: Verso, 2017). While Streeck argues that capitalism is bound to self-destruct before long, he does not claim that there is an alternative system to replace it.

¹⁸⁴ Ericson, Barry and Doyle, *Insurance as Governance*, 9. In 1999, Stephen Green was similarly skeptical about Beck’s projection that, faced with this new order of risks, our culture would begin to question the prevailing order. Reflecting on the “culture of risk” in global financial markets, he quipped that “it does not take a massive leap of the imagination to conceive of radioactive waste futures and options on ozone gases as the financial products of the 21st century.” See Stephen Green, “Negotiating with the Future: the Culture of Modern Risk in Global Financial Markets,” *Environment and Planning D: Society and Space*, 18 (2000): 81.

that the industry has thrown up its hands in defeat. New strategies, such as Catastrophe Modelling, are constantly being developed.¹⁸⁵

The insurance industry, having a vested interest in remaining solvent, is actually far ahead of most states and international organizations in recognizing the need to change our behaviors to prevent or at least mitigate the risks associated with climate change. The general response of governing bodies to climate change has been one of reluctant and meager concessions to the projections of climate scientists, such as very gradually reducing the scale of CO2 emissions, investing in green technologies or carbon trading. The fundamental logic which drove us to this point is rarely questioned. Few ‘solutions’ better illustrate how our thinking is held captive within the logics of modernity and capitalism than the trade in carbon emissions. Signatories to the Kyoto Protocol in 1997 were given caps on the levels of carbon dioxide emissions that their nations were permitted to produce. They could then buy carbon units from countries with low carbon emissions, in order to raise the cap on their own. Like all commodified

¹⁸⁵ For the challenges faced by the insurance industry see Evan Mills, “Insurance in a Climate of Change,” *Science*, Aug. 12 2005, 309, no. 5737: 1040-1044. For Industry strategies for dealing with climate change see Ralf Toumi and Lauren Restell, (Lloyds) “Catastrophe Modelling and Climate Change,” *Climate Signals*, Jan. 1, 2014, <https://www.climatesignals.org/scientific-reports/catastrophe-modelling-and-climate-change>. Also see Howard Kunreuther and Erwann Michel Kerjan, “Managing Catastrophes through Insurance: Challenges and Opportunities for Reducing Future Risk,” *Risk Management and Decision Processes Center*, (Philadelphia, PA: The Wharton School of the University of Pennsylvania, 2009) and Geneva Association, “The Insurance Industry and Climate Change-Contribution to the Global Debate,” *The Geneva Reports* 2, no. 1 (2014): 1. For the Insurance industry’s response to the threat of terrorism see Claudia Aradau and Rens van Munster “Insuring Terrorism, Assuring Subjects, Ensuring Normality: The Politics of Risk after 9/11,” *Alternatives: Global, Local, Political* 33, no. 2, (2008): 191; and “Governing Terrorism through Risk: Taking Precautions, (Un)knowing the Future,” *European Journal of International Relations* 13, no. 1 (2007): 89.

and financialized risk transfer mechanisms though, carbon markets are productive of endless abstraction, with parcels of units being subject to speculative investment, and long chains of derivative transactions through which “risk” products are endlessly “offset” or externalized. Carbon trading not only fails to incentivize emissions reductions, it can actually end up rewarding the evasion of that goal.¹⁸⁶ The other dominant response to climate change has been the promotion of technological solutions. The attention and legitimacy given to such technocentric and marketized approaches – which propose to fix a problem with the causes of that problem- crowd out the impulse to make more substantive change.¹⁸⁷

We see a similar pattern in the superficial tinkering that has been applied to the financial markets since they caused the near collapse of the global economy a decade ago. The global financial crisis of 2008 was the result of speculative trading in a number of highly abstract financial instruments that allowed investors to skim the rewards from exchanges while endlessly passing the risks on. The practice of sub-prime mortgage lending and mortgage backed securities such as collateralized debt obligations were the trigger for the collapse of the market. But it wasn't just that the assets being traded were toxic: some argue that the deeper reason behind the collapse was that these risk transferring instruments, derivatives, were parcelled and exchanged and re-parcelled and exchanged until there was a vast “interconnected web of risks,” attached to

¹⁸⁶ For a diverse selection of essays critiquing the carbon market please see Steffen Böhm and Siddhartha Dabhi, eds., *Upsetting the Offset: The Political Economy of Carbon Markets* (London: Mayfly Books, 2009).

¹⁸⁷ See Ian Bailey and Geoff A Wilson, “Theorizing Transitional Pathways in Response to Climate Change: Technocentrism, Ecocentrism, and the Carbon Economy,” *Environment and Planning A*, 41 (2009): 2324-2341; and Paul Hawken, *Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming* (New York, NY: Penguin Books, 2017).

nothing, ultimately, but each other. Once one strand was exposed to risk, the entire web fell apart. The US government bailed out AIG and the big banks because of the immensity of the shockwaves that would otherwise have spread through the wider economy. These banks were, famously, “too big to fail.”

The crisis was deep enough to pierce the faith of the most fervent believers in market fundamentalism. Alan Greenspan had to admit that he was wrong when he insisted, for all those decades, on the innate wisdom of unregulated markets. And yet, ten years later, very little of substance has changed. In some countries regulatory mechanisms that had been dismantled were reintroduced, but in general, the conditions that led to the crisis remain in place. As one observer notes, “A decade after the start of the crisis, advanced economies still have not decisively pivoted away from a growth model that is overly reliant on liquidity and leverage.”¹⁸⁸ The American Enterprise Institution meanwhile observes that “a dangerous combination of a high global debt level, the gross mispricing of global credit risk, weak banks of systemic importance and global economic fault lines (like Brexit, the Chinese slowdown and the rampant banking crisis in the Eurozone) make it all too likely that the world is headed for a global economic and financial crisis”¹⁸⁹

¹⁸⁸ Mohamed A. El-Erian, “These are the Lost Lessons of the Great Recession” in *World Economic Forum*, Aug. 21, 2017, <https://www.weforum.org/agenda/2017/08/the-lost-lesson-of-the-financial-crisis>. Along a similar line please see Jacqueline Best, “The Limits of Financial Risk Management: or What we Didn’t Learn from the Asian Crisis,” *New Political Economy*, 15 (2010): 29-49.

¹⁸⁹ Cedric Durand, “The Ignored Lessons of the Financial Crisis’ in *Verso*, March, 1, 2017, <https://www.versobooks.com/blogs/3114-the-ignored-lessons-of-the-financial-crisis>.

Whether or not we are headed for another global financial crisis, what is clear is that there is not enough will, in the more powerful sectors of our societies, to resist the pull of the logic that has been driving us ever faster and further for centuries now. There is a momentum to the modern means of framing the future as an object, to be contained and managed on the one hand and gambled on and profited from on the other. that is easier to obey than to resist. If the big banks are “too big to fail,” the modern impulse to control is too endlessly inventive, its profits too alluring for some, to give up. In the thrall of this logic we create ever more abstract means of naming and containing risks, transferring them , and endlessly deferring them, in order to shape a future that looks a lot like “business as usual”- on amphetamines. We may want security, but it seems that we are beholden to a compulsion that only offers it in the form of temporary, ever more abstract ‘units.’

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Chapter 7

Modernity as Compulsion: Symptoms of Unfreedom and Ideas for Recovery

“Choose a life. Choose a job. Choose a career. Choose a family... Choose washing machines, cars, compact disc players and electrical tin openers...choose good health, low cholesterol, and dental insurance. Choose fixed interest mortgage repayments. Choose your friends. Choose leisurewear and matching luggage... Choose your future. Choose life...But why would I want to do a thing like that? I chose not to choose life. I chose something else. And the reasons? There are no reasons. Who needs reasons when you’ve got heroin?”

Irvine Welsh, *Trainspotting*.

*Sit, be still, and listen,
For you are drunk,
And we are at the edge of the roof*

Rumi

Riding my bicycle recently, I noticed a billboard up ahead of me. It featured, simply, a shiny silver car and the words "driven by the driven". On this pithy piece of ad copy I was able to chew for some moments. I could see in my mind the very type of person this car was meant to attract. Ambitious executives and daring entrepreneurs, to be sure, but even more so, those who aspire to be like them- single-minded pursuers of success. It occurred to then me how odd it is that in a culture which appears to prize personal autonomy above all other values, to call someone ‘driven’ is clearly meant to compliment them. For to be driven is also to be moved by an external force-- to act as the vehicle of some other, more powerful will. This contradiction extends to vehicles themselves. For nearly a century now, the car has been a core symbol of freedom, enabling its users greater autonomy of movement. And yet, in many ways it is the car that drives us, imposing its will in the arenas of geopolitics, resource extraction and employment, and

occupying the greater part of the spaces in which we live.

The point of these reflections is not to propose that we are mistaken in thinking that freedom is the core value being realized in modernity. Rather, it is to suggest that this freedom is, paradoxically, the means by which we find ourselves “driven” by modernity itself. Freedom in modernity has meant more than mere independence from external forces. It has equally involved the exertion of control over all that is external to us. In the preceding chapters I have sought to demonstrate how the impulse to transgress boundaries is always coupled with an impulse to mark new boundaries and how these two impulses interact *propulsively*. In this final chapter I want to consider the extent to which this propulsive movement amounts to a compulsive repetition of modernity’s dynamic and the extent to which we are or can be free of this compulsion.

Summary of the Dissertation

First, however, let us briefly review how the twin engines of freedom/control were shown to propel modernity forward in each of the historical episodes of the foregoing account. The second chapter opened with developments that actually preceded modernity “proper,” but which demonstrated the first unfolding of the modern dynamic. With the Papal revolution of the eleventh century the division between the secular and divine realms was redrawn, so that the divine was now accessible from within the time-bound secular world. This meant not only that one’s actions in the world had a greater weight, for they could propel one towards salvation, but also that the world itself began to be seen as an *object of reform*, along with the Church, the Law, and thought. With the Renaissance innovations of linear perspective in the visual arts and the growing ubiquity of time keeping methods in the fourteenth and fifteenth centuries, space and time also began to be objectified, ushering in a new view of the world as quantifiable and

malleable to human control. Increasingly, the human subject was seen as self-moving, free to act in the world, rather than determined by external forces. In the second half of this chapter I explored how, against a backdrop of anxiety over unprecedented social and geographical mobility, modern surveyors in Tudor England began to view estate lands as objects that could be measured and represented according to universal mathematical standards. This meant that, rather than being understood as God's domain, or evaluated according to the particular customary context in which it was embedded, each piece of land throughout England could be viewed, represented and controlled from the distant authority of monetary or legal power.

In the third chapter, we saw how this distanced view of land, disembedded from its customary context and evaluated according to abstract forms of knowledge, prepared the ground for the land's reordering. Property in land began to be viewed as the sovereign realm of the landowner. The ability to exclude other users of the land through enclosures was an expression of owners' freedom to use, improve, or sell their property according to their own will. The containing impulse of the enclosure movement was justified and propelled by the expansive impulse of improvement. By the eighteenth century, the discourse of improvement shifted from a defense of the practice of enclosure to an aggressive and moralistic campaign equating ceaseless cultivation of the land with God's providence, national strength and civilizational supremacy while portraying unenclosed wastes or commons as barren, chaotic, and fearsome voids. A parallel strategy of expansion through containment could be seen in the Baconian project for the reform and accumulation of scientific knowledge. Bacon's method called for re-grounding knowledge upon natural facts observed by the senses and tested through experiment, and for progressing inductively through a series of discrete steps towards provisional certainty. We also saw, in the case of Linnaean classification, how the endless accumulation of known natural

objects necessitated ever more refinement and readjustment of the categories enclosing them, to keep the ambivalence of the natural world at bay.

In the fourth chapter we saw how financial and scientific innovations cultivated both profit and security by harnessing the uncertainty of the future. Beginning in the 1660s, innovators in the science of probability, from Pascal and Fermat, to Bernoulli and Poisson, found ways of “taming chance.” By collecting and mapping data and inferring large patterns in that data the probability of events to come could be calculated. Meanwhile, in the early eighteenth century, financial innovations in London’s emerging stock market allowed participants to take risks by investing their capital in ventures, or to purchase a degree of security by transferring risk on to an insurer. But, as in the case of the South Seas Bubble, the growing abstraction of such trade could easily conceal its true nature. The quantification and calculation of risk opened up a new and more abstract dimension in the modern drive for both freedom and control. We saw in the fifth chapter, for instance, how the ability to calculate probable future events allowed governments of the nineteenth century to measure and reform social phenomena. The government of Victorian Britain drew on the new decennial national census and the emerging science of statistics to collect comprehensive data on the population, as well as those of its colonies. The categorization and publication of national data both fragmented the population into abstract groupings, and united it under one national identity. Risky categories, such as the poor, could better be monitored and contained. Statistics and the census served as techniques for governing at a distance, allowing the government, as risk manager of society, to replace Providence as the guarantor of the future.

In modern liberal societies property has become the medium through which citizens access security, goods, and membership in the polis. In the sixth chapter I showed how the

exclusion of the propertyless created a mass of people exposed to the insecurity of life without social protection, and how this risk-prone category came, itself, to be viewed as a risk to the very system by which liberal societies were organized. Thus, by the late nineteenth and early twentieth centuries governments began to fill the gaps in social protection remaining between the private insurance industry and a host of informal mutual benefit societies. After the Second World War, the governments of developed nations began to create comprehensive social welfare systems for protecting citizens from risks, many of which (unemployment, social isolation, workplace accidents) were generated by capitalism and modern society themselves. The state took on the role of the guarantor of both progress and social solidarity, and sought to integrate the seemingly contradictory objectives of economic growth and social welfare.

Meanwhile, states enabled the growth of the private insurance sector as their partner in risk management and as the primary institution for ‘governance beyond the state’. Since it underwrites risk-taking in capitalist societies, the insurance industry has become an indispensable facilitator of economic growth as well as the means by which ever more spheres of human activity have come to be quantified, commodified and categorized according to risk, and regulated. Furthermore, insurance’s role in social regulation has been enlarged as states have sought to diminish their own role in social welfare provision in the neoliberal era. Over the last four decades, globalization, speculative finance, and deindustrialization have revealed that the stability enjoyed by welfare states was temporary, and that instead, modern systems and societies are characterized by instability, insecurity and inequality. The response to this uncertainty has been to unload the responsibility for risk management onto individuals, and take ever more of life’s contingencies into our individual control by submitting them to risk calculus and commodification.

In chapters two, three and four of this dissertation we saw how freedom meant both transgressing the traditional religious or customary standards of legitimate behaviour and extending the human will out into the world, by cultivating endless forms of growth. Again and again, this freedom was accompanied by efforts to fashion new grounds of legitimacy, security and certainty, whether through quantitative representation, enclosure, facts, probabilistic calculation, or insurance. In chapters four and five, we saw the repetition of the impulses of freedom and control as, by the nineteenth century, the logics of surveying and mapping, enclosing and improving were applied to the realms of society and the future, resulting in the increasing abstraction and integration of the systems governing modern life. We continue to respond to uncertainty and insecurity with the same double strategy of containment and expansion, as the impulses for freedom and control intensify, expand, and accelerate.

In the remainder of this concluding chapter I wish to consider both the compulsive nature of modernity and some of the ways that have been and are being imagined for liberating ourselves from its grip. After briefly relating some of the theoretical arguments that have been made about the limits of freedom in modernity, I then examine some of the connections that socio-cultural scholarship has drawn between addictive and compulsive disorders experienced by individuals and the problems of freedom and control at the core of the modernity itself. I draw attention to a few of the most glaring examples of our compulsive attachment to the logics of modernity today, namely, our response to the 2008 global financial crisis and our response so far, to climate change. I ask how we can assert our independence from the processes and logics that seem to wrap us up in the momentum of modernity. To answer this question I outline some of the major lines of critique and forms of resistance that have historically challenged modernity as a totalizing, rationalistic, and disenchanting force. Finally, I look at some contemporary practices

that, however modest, playful, or symbolic, can encourage us to see the unassigned spaces where weeds spring up, unofficial, nameless, free.

Modernity as Monster, Iron Cage, and Juggernaut

In *The Consequences of Modernity*, Giddens proposed a metaphor for modernity that would serve as an alternative to Weber's iron cage of bureaucratic rationality¹ and Marx's monster-to-be-tamed.² He argued instead, that modernity is a juggernaut, a huge vehicle moving with an unstoppable momentum, the pace and direction of which are not wholly within our control.³ The "runaway" character of the juggernaut captures some of Weber's sense that modernity moves

¹ I have already discussed, in the introduction, Weber's view that the increasing tendency towards bureaucratic rationality in modernity can lead to the curtailment of freedom. His use of the term "iron cage" in *The Protestant Ethic*, has become a sort of shorthand for his ideas about the confinement of freedom through rational, bureaucratic and capitalist processes. However, as Peter Baehr has pointed out, the "iron cage" actually came to us through Talcott Parson's original translation of *The Protestant Ethic* into English. Baehr argues that, in fact, the original German *Stahlhartes Gehäuse* is better translated as "steel-hard casing" or "shell", and that this metaphor better captures both the complexity and modernity of Weber's views on rationalization and freedom. See Peter Baehr, "The 'Iron Cage' and the 'Shell as Hard as Steel': Parsons, Weber, and the Stahlhartes Gehäuse Metaphor in the Protestant Ethic and the Spirit of Capitalism," *History and Theory* 40, no. 2 (May, 2001): 153. For the Parson's translation of the metaphor, see Max Weber, *The Protestant Ethic and the Spirit of Capitalism*, trans. Talcott Parsons (London: G. Allen & Unwin, Ltd., 1930), 181.

² While Marx never portrayed 'modernity' itself as monstrous, the imagery of monsters runs throughout his critique of capital, in *Capital Volume one*. For instance, in Chapter 10 of *Capital Volume One* he wrote "Capital has one sole driving force, the drive to valorize itself, to create surplus-value... Capital is dead labour which, vampire-like, lives only by sucking living labour, and lives the more, the more labour it sucks." See Karl Marx, *Capital: A Critique of Political Economy, Volume One*. Trans. Ben Fowkes (London: Penguin Books, 1990), 342. On the theme of monsters and monstrosity in Marx's critique of capital see David McNally, *Monsters of the Market: Zombies, Vampires and the Global Capitalism* (Leiden & Boston: Brill, 2011).

³ Anthony Giddens, *The Consequences of Modernity* (Cambridge, UK: Polity Press, 1990), 138-9.

irreversibly and irresistibly forward, but without limiting its nature to the bureaucratic and rational. And, as a massive vehicle crushing people in its path, and threatening to “rend itself asunder” the juggernaut also captures the monstrosity suggested by Marx, particularly with regard to capitalism, but without his historical certainty that we can ultimately wrest control from it. What Giddens himself saw as lacking in the metaphor of the juggernaut was the sense of the contradictory forces, the dialectical tension propelling modern processes, that is so central to his theory of modernity.⁴

While not immediately apparent from the imagery itself, the monster, the iron cage and the juggernaut all convey something of modernity’s essentially *propulsive* and *overpowering* nature. That is to say, there is something in the forward movement of modern processes through time that suggests a dynamic force. This force can appear monstrous because it seems to have a life and will of its own. But this monster is just the larger cousin of the commodity- an object fetishized on a macro scale, or as Poovey might phrase it, a giant we have “vivified.”⁵ Because we are so small, as individuals and cultures of specific times and places, modernity, striding forward with centuries of momentum behind it, appears to pull us along with it, as though we had no control over the matter. It appears to compel us. But modernity is really a macro-historical process, the sum of our collective behavior over a particular period of time. Thus, in proposing compulsion as a metaphor, I wish to highlight the propulsive and seemingly relentless

⁴ For Giddens, a series of dialectical processes stem from the time-space distancing of modernity, including the displacement and re-embedding of social relations, the development of both intimacy and impersonality, and expertise and everyday knowledge. See Giddens, *The Consequences of Modernity*, 139-141.

⁵ Mary Poovey, *Making of A Social Body: British Cultural Formation, 1830-1864*, (Chicago: The University of Chicago Press, 1995), 9.

character of modernity, but, in seeing it as the accumulation of our behaviour I hope to convey how ultimately, we have agency over it.

What is the source of the compulsive behaviour we call modernity? Like Giddens, I see modernity's propulsion as being fueled by contradictory forces. However, I more closely follow Bauman and Heller in identifying the source of modernity's restless movement in the tense and interdependent drives for freedom and security. Bauman has described the way we move in modernity as a restless march towards the future, a horizon that is never reached. This forward movement is an act of freedom in search of its limits; with every step old certainties are shaken off like dust. With every step we intend to land our feet upon firm ground, to stand securely on some certainty. But we never arrive. Our freedom seeks to anchor itself, but instead of taking root, is dissatisfied, doubtful, and impelled further forward by the dream of home. Modernity thus propels itself with the mutual dissatisfaction of our alternating needs for freedom and security.

But modernity is not a Sisyphean sentence of eternal repetition, for it is cumulative: every step has new consequences that propel us to the next. This is because modernity is, as Heller puts it, founded upon the paradox of freedom. The impulse of freedom allows us to transgress the limitations of the known, but in doing so, opens up the ground beneath us. Modernity's compulsive desire for certainty and security is rooted in this groundless ground, and it is exhibited through ever more attempts to assert control. This compulsion for control is, I think, less like rationality's ever-tightening embrace envisioned by Weber and the Frankfurt school, and more like the behaviors of individuals diagnosed with obsessive-compulsive or addictive disorders. In such behaviors the will is not *taken over* by internal or external forces, so much as it is *given over* to them in an act of submission.

Addiction in Modernity

By the nineteenth century the job of protecting, guiding and framing human experience had largely been transferred from the realms of divine authority and the community to large institutions and systems on the one hand, and individuals, on the other. Human security in all of its forms has since then depended upon indirect and abstract relationships between individuals and institutions. Increasingly individuals have had to learn how to manage their freedom. One way of doing this has been through the internalization of social norms, as explicated by Foucault. Another way has been for individuals to approach their lives as ongoing projects, projects that are deeply influenced by cultural and economic contexts, but which ultimately fall to the individual to design and develop. A third way is to retreat, escape, or outsource the responsibility to manage one's freedom by relinquishing it to an external force, and to follow the dictates of that force. The internalization of norms, the 'project of the self' and the surrender of the will are not isolated camps; most of us engage in all three strategies for managing freedom. I want to reflect on the third strategy, for I think it can tell us something about the compulsive character of modernity itself.

Recently socio-cultural scholars have begun to consider these individual psychological conditions in the light of the larger cultural condition of modernity. Not surprisingly, they have found corresponding patterns of behavior between individuals afflicted with compulsive or addictive conditions, the dominant patterns in their wider societies, and in the history of modernity. Their work tells us something too rarely voiced about how we act and how we feel in

modernity.⁶ As Reida Gerth puts it, "ideas about 'addiction' or 'pathology' are actually cyphers for concerns about issues of control." Trouble with control, whether gaining, keeping or relinquishing it, is one and the same as trouble with freedom: a continual re-shifting of the burden that is unique to living in an underdetermined world.

It may appear natural to us that individual, psychological "disorders" are considered the exclusive domain of medical and psychiatric professionals. But, as Robert Granfield has noted with regard to addiction, this "methodological individualism" in which addictions are treated as isolated and largely physiological phenomena, amounts to an "addiction fetishism".⁷ Like the fetishism of commodities, addiction fetishism obscures the social relations that produce addiction. What are these relations? In seeking the causes of addiction sociologists often point to the same conditions of displacement, fragmentation, and alienation, identified as the products of modernity by observers from Marx, Tonnies, and Durkheim to Giddens, Luhmann, Heller, and Bauman.

In a study of Vancouver's drug ravaged east side, for example, Bruce Alexander has critically explored the social history of Vancouver and found a strong relation between its widespread addiction problem and the personal dislocations produced by the accelerating socio-

⁶ Of course, one might argue that it is very often voiced, not only in existentialist texts and novels of the mid twentieth century, but also in art, film, literature, and music, the anxiety of disorientation is one of the chief expressions of art.

⁷ Robert Granfield, "Addiction and Modernity: A Comment on a Global Theory of Addiction," *Nordic Council for Alcohol and Drug Research* 44 (Jan, 2004): 29-34. I would suggest that the domination of "methodological individualism" is not total, for there are countertendencies to the individualization of addiction and other individual medical and psychological conditions. In recent years anyway, 'individual' problems as varied as smoking, obesity, domestic violence, alcohol, suicide, opioid and other addictions have been labelled "public health issues". This reflects a growing recognition of the social causes and consequences of certain health concerns.

economic transformations of a free market society.⁸ As Granfield points out, such dislocation is akin to both Marx's concept of alienation and Weber's notion of disenchantment; an uprooting of individuals from coherent systems of meaning.⁹ The rootlessness and disorientation experienced by individuals in modernity necessitates what Giddens has called the "reflexive project of the self", in which we ask ourselves, continuously; "What to do? How to act? Who to be?", for none of these are determined.¹⁰ A reviewer of Giddens's *Modernity and Self-Identity* describes Giddens' "project of the self" succinctly: "in this uncertain world, the self becomes a reflexive, i.e. circular, project where mastery of the self and body provides the certainty needed for everyday living. In other words, the goal of the reflexive project is to create unity from fragmentation, certainty from uncertainty, and empowerment from powerlessness."¹¹

But for many of us, dislocation cannot be corrected through a five year plan, a self-help program or artistic expression. Alexander explains that "[p]eople who cannot achieve psychosocial integration develop 'substitute lifestyles'" in which certain "excessive habits" enable them to adapt to conditions of dislocation. In the long run, these habits are dysfunctional

⁸ Bruce K. Alexander, "The Globalization of Addiction," *Addiction Research* 8, no.6 (2000): 501.

⁹ Granfield, "Addiction and Modernity," 30.

¹⁰ Anthony Giddens, *Modernity and Self-Identity, Self and Society in Late-Modern Age* (Cambridge: Polity Press, 1991), 70.

¹¹ Chad Lackey, "Review: Giddens's 'Modernity and Self-Identity'," *Berkeley Journal of Sociology* 37 (1992): 181-185. Of course Giddens was not the only or the first to underscore the necessity of self-fashioning in modernity. Bauman, Beck and Castells, have each articulated some version of it, and it was one of Nietzsche's central messages, that each person should recognize that "he is... the actual poet and ongoing author of life." See Friedrich Nietzsche, *The Gay Science: with a Prelude in German Rhymes and an Appendix of Songs*, ed. Bernard Williams and trans. Josefine Nauckhoff (Cambridge: Cambridge UP, 2001), 171.

and tend to exacerbate rather than restore psychosocial deficiencies. But they do, in Granfield's words, "provide, at least for a time, effective avenues to personal meaning" as well as "comfort and security in a world that is increasingly experienced as being out of control."¹²

In his 2004 book, *The Globalization of Addiction*, Alexander applies the term addiction not only to drugs and alcohol but to a wide, almost infinite, range of human activities, emphasizing people's sense of dependence on or excessive attachment to some behaviour, or person or thing, rather than the addictive qualities inhering in certain substances that are the focus of most biomedical approaches to addiction. He also makes a case for the universal presence of addiction across cultures and historical periods, citing examples from China to Vancouver, and from Plato and St. Augustine to the junkies on Hastings Street. Yet, while he sees addiction in this broad sense, as to some extent inherent to the human condition, he also stresses that because people are "inevitably dislocated" under the conditions of late capitalism, addiction has now become endemic.

Processes of social fragmentation have indeed intensified in the Post-Fordist economic period; neoliberal policies have forced labour to become more flexible, with the result that ever more people are moving for work, or changing the kind of work they do. This increase in geographic and occupational mobility, as well as the rise in contract work, are accompanied by ever greater uncertainty about where and how to work and to live. Of course, the flip side of this uncertainty is the widespread recognition that individuals are free to choose the shape and nature of their lives, not only once but continually. But when even the most basic conditions giving

¹² Bruce K. Alexander, *The Roots of Addiction in Free Market Society*, (Vancouver, BC: The Canadian Centre for Policy Alternatives, 2001), 1. Also see Granfield, "Addiction and Modernity," 31.

structure to people's lives –where they live and what they do-are subject to constant reevaluation and change, nothing can be taken for granted. Thus, the proliferation of addiction in late capitalism stems not only from dislocation, poverty and the fragmentation of communities and families but also from a hyperawareness that the substance of our lives is contingent upon the choices that we make as individuals. It is individuals who have the burden of steering through that contingency and taking a meaningful direction.

For Reith, addiction must be understood in relation to “the problem of freedom”, that I have just described, and, in particular, to the obligation of individuals in consumer-driven “advanced” economies, to assert that freedom through consumption. In the aggregate, excessive consumerism is imperative in ‘advanced’ economies where the productive sectors (industry, agriculture, resource extraction) have been overtaken by the service sector. But the ‘obligation’ to express one’s freedom through consumption also stems from the intersecting spheres of consumerism, lifestyle and identity, and from the mode of governance in liberal societies, where “it is through the exercise of freedom that individuals not only realize themselves but also govern themselves.”¹³ Thus, neoliberalism both encourages and demands consumption, even while it exhorts individuals to maintain self-control by “managing freedom through self-government.”¹⁴

The word ‘addiction’, Reith notes, is derived from a Roman legal term, meaning ‘a surrender, or dedication, of any one to a master.’ From drug and alcohol addictions to the more recently identified addictions to sex, gambling, work and food, to even the half-joking confessions that one is a “chocoholic” or “shopaholic,” ever more individuals in consumer

¹³ Gerda Reith, “Consumption and its Discontents: Addiction, Identity and the Problems of Freedom,” *The British Journal of Sociology* 55, no. 2 (2004): 285. On the topic of governance through freedom, see Nickolas Rose. *Governing the Present: Administering Economic, Social and Personal Life*, with Peter Miller (Oxford: Polity Press, 2008).

¹⁴ Reith, “Consumption and its Discontents,” 294.

societies seem to identify with this state of surrendered agency.¹⁵ For Reith, the growing prevalence of addict identities points up the paradox of freedom in neoliberalism, wherein “values of freedom, autonomy, and choice associated with the spread of consumerism” are juxtaposed against discourses about the “vitiating of freedom, an undermining of agency and a lack of choice” within addictive states.

But this paradox is not exclusive to neoliberalism or consumerism, and addiction is not the sole expression of the subjugated will. That is, the assertion of the will and its subjugation are both characteristic of the experience of individuals in modern societies. Particularly in modern liberal societies where both formal law and cultural discourse uphold individual freedom as the core value, a host of interlocking systems, bureaucratic, economic, and otherwise, confront the individual with a stark choice: submit to the logic of these systems or exist outside of the borders of legitimacy and protection. The indirect, but inescapable means by which individuals are compelled to participate in capitalist economic relations is but one example of the limits of freedom in modernity. As I discussed in the last chapter, the expert knowledge and abstract systems structuring our everyday lives function through the collective trust we place in them, but as they are beyond the comprehension of mere individuals we have little choice but to trust them, just as we have little choice but to make an endless series of choices such as are rejected by Renton, the junkie narrator of Irvine Welsh’s *Trainspotting*, quoted in the opening of this chapter.

¹⁵ Reith, “Consumption,” 284. Also see Anne Cronin, “The Substance of Consumption: Alchemy, Addiction and the Commodity,” *International Journal of Cultural Studies* 5, no.3 (2002): 316-335, 328.

In modern societies the hymn to freedom is sung so loudly that the compulsory aspects of our lives are diminished to an unacknowledged baseline beneath the surface. Addiction turns up the volume of the determinate, so that what needs to be done is sounded in a clear and urgent drum beat. As Reith explains, “at a time when the admonition to choose from a barrage of commodities and experiences is at its most insistent, the active adoption of the 'addict identity' may be interpreted as the embrace of a determined state that rejects the need for just such choice.”¹⁶ In this context, the addict’s choice makes sense: the paring down of promise to one bare arrow, pointing to the next hit.

Compulsion, Neurasthenia and Doubt

Fleeing from too much choice into the strong arms of an addiction is just one response to the indeterminacy of the modern condition. Others respond by taking extreme control in some aspect of daily life where control is possible. In “Obsessional Modernity: the Institutionalization of Doubt,” Jennifer Fleissner takes the fictional narratives and the memoirs of people living with the condition of obsessive compulsive disorder as a starting point for examining the relationship between control and indeterminacy in modernity.

Whether their compulsions lead to the repetition of counting, checking, or cleaning behaviours, the characters in the novels and memoirs Fleissner discusses all “feel the pull of that gorgeous order against the rough edges of the everyday.”¹⁷ In recent decades treatment for OCD has, as with many psychological disorders, turned decidedly towards biochemical interventions which target cognitive malfunctions as the source of the condition. In the nineteenth and early

¹⁶ Reith, “Consumption,” 296.

¹⁷ Jennifer L. Fleissner, “Obsessional Modernity: ‘The Institutionalization of Doubt,’” *Critical Inquiry* 34, no. 1 (Autumn, 2007): 108.

twentieth centuries, earlier manifestations of obsessive-compulsive disorder, such as “obsessional neurosis” and “neurasthenia” were understood to be symptomatic of changes in the condition of the wider culture. In fact, many psychologists of the period made explicit the link between individuals’ disordered behaviours and the social malaise accompanying modernity. In the 1860s, for example, the American neurologist George Beard coined the term neurasthenia, meaning “weak nerves”, for a cluster of symptoms including fatigue, anxiety, depression and various fears, and attributed them to the accelerated pace and overstimulation of urban modernity.¹⁸ Beard thought of neurasthenia as an American disease, one that especially afflicted business and professional men prone to overwork in a culture obsessed with productivity. Another neurologist saw it as the tendency in modern people to view themselves as “perpetual motion machine[s].”¹⁹

Although the nervous collapse of the neurasthenic is in some ways the opposite of the obsessive neurotic, the more obvious forebear of today’s OCD, both were understood, in the nineteenth century, to be a response to modernity’s restless forward motion, and to the sense that the world was spinning out of control. Fleissner recalls for us the suggestion proffered by the American historian Henry Adams, that beneath all of the restless productivity of his time was a roiling ocean of doubt. Rather than being purposeful, he saw this activity as arising from some “instinct of danger from behind.” Adams ceaselessly scrutinized the meaning of his own

¹⁸ Fleissner, “Obsessional Modernity,” 111.

¹⁹ It was understood at the time to have been more common among upper and middle class men, but a study of historical hospital data in England, found that men and women were equally diagnosed with it, as were all social classes. See Ruth E. Taylor, “Death of Neurasthenia and its Psychological Reincarnation: A Study of Neurasthenia at the National Hospital for the Relief and Cure of the Paralysed and Epileptic, Queen Square, London, 1870-1932,” *The British Journal of Psychiatry* 179, no. 6 (2001): 550-557.

neurasthenic symptoms and of the culture that produced them, but he was hardly alone in suspecting a pervasive doubt to be at the bottom of the cultural anxiety of the period.²⁰ In fact, French psychologists of the time referred to one set of fearful and obsessive symptoms as *la folie du doute*, or *maladie du doute*, “the doubting mania.” According to the *Historical Dictionary of Psychiatry*, those suffering from this condition were “subject to irresistible thoughts with psychotic feelings of uncertainty about whether one has performed some specific act.” The resulting need to repeat such acts again and again crowded out all other aspects of their lives.²¹ The French psychologist Pierre Janet suggested that what drove some individuals to the compulsive repetition of certain acts was not some desire to perfect them, but an unrelenting sense of their *incompletion*.²²

The nineteenth century perception that such compulsive, repetitive behaviours may stem from an unappeasable doubt is, Fleissner notes, entirely absent in the diagnostic definition of OCD today, where the emphasis is on the sufferer’s preoccupation with control, orderliness, rules and perfection.²³ Certainly, what Fleissner calls “the hyperbolic quest for control” is the

²⁰ Henry Adams, *The Education of Henry Adams* (Oxford: Oxford University Press, 2008). According to Jackson Lears, the “paralysis of the will” suffered in neurasthenia was symptomatic of the larger cultural reactions to modernity in late nineteenth century America, when a discourse of “overcivilization” or degeneration dominated and seemed to produce “psychic crises.” See Jackson T.J. Lears, *No Place for Grace: Antimodernism and the Transformation of American Culture, 1880-1920*. University of Chicago Press, 1994), 47-58.

²¹ See Edward Shorter, ed. *The Historical Dictionary of Psychiatry* (Oxford: Oxford UP, 2005), 199. Also, Gustavo Guerra, “Henry James’s Paradoxical Bowl: The Reinstatement of Doubt in “Fin-de-Siècle” America,” *Style* 32, no. 1 (1998): 60. <http://www.jstor.org/stable/42946409>.

²² Fleissner, “Obsessional Modernity,” 117-118.

²³ *Ibid*, 118.

most observable feature of obsessive-compulsive behavior, just as the surrender of control is apparent in addictive behaviour. But focusing on these outward behaviours does nothing to explain the *abysmal* nature of the quests for control, or for the surrender of control in addiction. In fact, Fleissner compares the prevailing diagnosis of compulsive disorder with those accounts of modernity, such as Adorno and Horkheimer's *Dialectic of the Enlightenment*, that focus exclusively on the obsessive drive for rational control: both are only partial understandings of the nature of the compulsive dynamic. Instead, she notes that the intuitions of both nineteenth century observers and the recent novels and memoirs about OCD suggest an "alternative framing of the dialectics of modernity."²⁴ In this framing, control and indeterminacy are two poles pulling one another in an ongoing revolution; the radical doubt and open-endedness of modernity create a sense of incompleteness that drives a pathological restlessness and efforts to control, and these responses, being means without ends, only serve to deepen the abyss of indeterminacy.

Modern Shelters for Modern Storms

I haven't gone on at length here about addiction and compulsion merely to suggest that these are manifestations of the larger condition of modernity, but also in order to consider their suitability as metaphors for our habituation to the condition of modernity. On the one hand, addiction points to the "problem of freedom," the "sudden awareness of the self as the unjustified source of all values and of all action,"²⁵ and the surrender of the will to some determinate force in response to that problem. On the other hand, compulsion points to the repetition of particular acts of control

²⁴ Ibid, 112.

²⁵ Fredric Jameson, *The Ideologies of Theory: The Syntax of History*. Vol. 2. (Minneapolis: University of Minnesota Press, 1988), 7.

in response to a sense of bottomless doubt and a condition of “radical open-endedness”. What can the concepts of addiction and compulsion tell us about our current relationship to modernity today? As I have shown in this work, modernity is a historically contingent set of social formations that were constructed over time, in which certain logics have recurred. In what ways are we beholden to continue acting out these logics? How are we, today, compelled to repeat the modern dynamics of surveying and mapping, improving and enclosing, and risking and insuring? In the following section, I consider three current examples of how we cling compulsively to the systems and constructs of modernity: in our responses to the Global Financial Crisis of 2008, the threat of climate change, and the global refugee crisis.

The Global Financial Crisis of 2008

When the governments of the US and the UK chose to prop up some of the very banks, insurance and investment companies that had contributed heavily to the Global Financial Crisis of 2008, they did so with the rationale that these institutions were “too big to fail”.²⁶ Just a few weeks after the investment firm Lehman Brothers declared bankruptcy on September 15 - triggering what many economists have called the worst financial crisis since the Great Depression- the Bush administration enacted a bill allowing the Treasury to spend \$700 billion to buy the toxic assets held by some of the biggest investment firms and banks. Similarly massive bailouts occurred in the UK and across Europe.²⁷ The crisis had been building for decades,

²⁶ T. S. Umlauf, “The paradoxical genesis of too-big-to-fail,” *Journal of Governance and Regulation* 3, no.1, (2014): 28. http://doi.org/10.22495/jgr_v3_i1_p2.

²⁷ Catarina Fernandes, et al, “Determinants of European Banks’ Bailouts Following the 2007–2008 Financial Crisis,” *Journal of International Economic Law* 19, no. 3 (September, 2016): 707. <https://doi.org/10.1093/jiel/jgw060>. Also see Paul Langley, *Liquidity Lost: The Governance of the Global Financial Crisis*, (Oxford: Oxford University Press, 2015), 82–86; and

owing, in large part, to the deregulation of financial markets, and to the increasingly abstract and complex nature of financial transactions and instruments such as derivatives and securitization, including the bundling of subprime with prime mortgages. Deregulation also meant that investment, insurance, and commercial banking began to merge together within some of the largest institutions, exposing them (and all who are connected to them) to the greater risk that comes with speculative financial activity.²⁸In the end, it was taxpayers, homeowners and workers who underwrote this risk, through the bailouts, foreclosures and unemployment that followed.

There are a few different ways that the global financial crisis can be seen as symptomatic of compulsive modernity. First, the speculative bubble that led up to the crisis was but one frenzied example of capitalism's essential dynamic: the insatiable drive to accumulate capital.²⁹

Maria Gerhardt and Rudi Vander Venet, "Bank Bailouts in Europe and Bank Performance," *Finance Research Letters* 22 (2017): 74-80.

²⁸ For a succinct account of the processes of deregulation and the merging of investment, insurance and commercial banking in the American context, please see Barry Eichengreen, "Financial Crisis: Revisiting the Banking Rules that Died by a Thousand Small Cuts," *Fortune*, January 16, 2015.

²⁹ David Harvey explains that this drive to accumulate capital perpetually is an example of what Hegel called "bad infinity" and argues that "Contemporary capitalism is locked into the bad infinity of endless accumulation and compound growth ... money can accommodate to the infinite need for the expansion of value simply by having the central banks add zeros to the money supply." Moreover, our view of the world "is held hostage to the insanity of a bourgeois economic reason that not only justifies but promotes accumulation without limit while pretending to a virtuous infinity of harmonious growth and continuous and attainable improvements in social well-being. The economists have never confronted the 'bad infinity' of endless compound growth that can only culminate in devaluation and destruction. See David Harvey, *Marx, Capital, and the Madness of Economic Reason*. (Oxford: Oxford University Press, 2017), 173-4. Marx himself wrote in the *Grundrisse*, that money "becomes a *madness*", and in competition the madness of this 'inner tendency of capital appears as a compulsion exercised over it by alien capital, which drives it forward beyond the correct proportion with a

The risk management strategies deployed in finance are part of modernity's calculative rationality and its dynamics of surveying and mapping, enclosing and improving and risking and insuring. Second, the response to the crisis was essentially to defer any significant change of behavior by putting a shattered system on life-support. Finally, the logic of "too big to fail" can tell us something about our dependent attitude towards the entire global economy, and to the interconnected systems of modernity:

It is thought that the seeds of the 2008 crisis were first sown around the turn of this century, when those who had accumulated wealth in emerging markets like China and the Middle East went in search of global investment opportunities. Because the Federal Reserve had lowered interest rates on the US dollar, US currency was no longer the profitable investment that it had once been. Thus, there was a greater than usual demand for investment opportunities in the form of mortgages and other kinds of debt, as these have traditionally been both secure and profitable. When this demand continued to exceed available investment opportunities, a new level of creativity and recklessness began to pervade Wall Street activity; mortgages and other contractual loans were made available to ever more people, including those least likely to afford to honour future payments. The risks attached to these loans were then bundled, sliced up, and transferred, many times over³⁰ That a reasonable limit- the (temporary) lack of investment

constant march, march!" See Karl Marx, *Grundrisse: Foundations of the Critique of Political Economy*, trans. & forward by Martin Nicolaus, 1973 (London: Penguin, 2005) ii-iv.

³⁰ While the catalyst for the recent surge in speculative financial activity may have been the flooding of capital from emerging markets around the turn of this century, and the search for new investments for that capital (which coincided with the removal of the regulations stipulated by the Glass Steagal Act in 1999), the trend towards the financialization of capitalism began as far back as the 1970s. At that time monopolistic corporations began to accrue massive profits, but this also reduced "the demand for additional investment in increasingly controlled markets." What followed was a pattern of "more and more profits, fewer and fewer profitable investment

opportunities- was ignored and overcome by contracting (and then transferring the risk of) the debt of the poor is, I think, indicative of an unwillingness to forego the “high” of capital accumulation and the game of speculation, even when it defies reason and ethics.

The 2008 crisis was the collapse of a house of cards (and a housing market) built in the insatiable drive to accumulate ever more capital. Many had seen such a crisis coming and had warned of the need to set limits on this drive. As early as 1984, James Tobin argued that,

we are throwing more and more of our resources...into financial activities remote from the production of goods and services, into activities that generate high private rewards disproportionate to their social productivity.... the advantages of the liquidity and negotiability of financial instruments come at the cost of facilitating nth-degree speculation which is short-sighted and inefficient.³¹

The diagnosis of the financial system as increasingly irrational, unjust and myopic fell on deaf ears. Not only were warnings not heeded, but the crash itself, sending shockwaves around the world, did not act as the wake-up call that it should have been.

The collapse should have been analogous to the moment when an addict hits rock bottom, when the devastation wrought by the addiction cannot be denied. Seeing the fates of so many tied into the gambling games of the few should have made all of us question the status quo. And indeed, most commentators at the time vowed that fundamental change could no longer be

opportunities” igniting a, “double process of faltering real investment and burgeoning financialization.” Magdoff and Sweezy, quoted in John Bellamy Foster (Apr 01, 2007), “The Financialization of Capitalism” in *Monthly Review*, <https://monthlyreview.org/2007/04/01/the-financialization-of-capitalism/>. As Foster himself explains “For the owners of capital the dilemma is what to do with the immense surpluses at their disposal in the face of a dearth of investment opportunities. Their main solution from the 1970s on was to expand their demand for financial products as a means of maintaining and expanding their money capital. On the supply side of this process, financial institutions stepped forward with a vast array of new financial instruments: futures, options, derivatives, hedge funds, etc.”

³¹ James Tobin, quoted in Foster, “The Financialization of Capitalism.”

avoided. More than a decade on, however, the consensus seems to be that there has been a return to ‘business as usual’; what changes have been made have not gone nearly far enough to avoid a repetition of the crisis.³² According to Piketty, the bailouts, and “the monetary pragmatism of 2008 and 2009...[that] helped us avoid the worst, and put out the fire for now, also *led us to think too little about the structural reasons behind the disaster,*” not least of which was the economic inequality that led to “an explosion of private debt” among the middle and lower classes.³³ In fact, structural conditions such as inequality and debt have only intensified since the crisis. That the rise in speculative finance fuels and is fueled by economic inequality is clear when we consider that for many, debt has overtaken income.³⁴ Those who took on subprime

³² As Amitava Krishna Dutt, explains: “in the immediate aftermath of the crisis there was a retreat from the reigning doctrines of free market fundamentalism and conservative macro-economic policy focused on inflation control, as reflected by attempts at the regulation of (and government intervention in) financial systems...However, free market dogma, and fears of inflation and government debt and deficits, are now on their ascendancy.” See Amitava Krishna Dutt, “Uncertainty, Power, Institutions, and Crisis: Implications for Economic Analysis and the Future of Capitalism” in *Review of Keynesian Economics* 3, no. 1, (Spring 2015): 9. Also see Joseph Stiglitz, *Freefall: America, Free markets, and the Sinking of the World Economy*, (New York, NY: WW Norton & Company, 2010), 342; Ernest Aigner, et. al. “The Focus of Academic Economics: Before and After the Crisis” Working Paper No. 75 (May, 2018), *Institute for New Economic Thinking*, <https://rwer.wordpress.com/2018/09/03/after-the-crisis-business-as-usual/>; Christian M. Stiefmueller, *Ten Years After: Back to Business as Usual*, *Finance Watch* (Finance Watch, 2018), <https://www.finance-watch.org/wp-content/uploads/2018/09/10YA-FW-report.pdf>. For an argument that the crisis was not solely financial in origin but rather characteristic of the processes of capitalism since the early nineteenth century, see Paul Mattlick, *Business as Usual: The Economic Crisis and the Failure of Capitalism*, (Islington, UK: Reaktion Books, 2011).

³³ Thomas Piketty, “Why Save the Bankers” in *Why Save the Bankers? And Other Essays on our Economic and Political Crisis*, trans. Seth Ackerman, (Boston & New York: Houghton, Mifflin, Harcourt, 2016), 7.

³⁴ According to a recent report from Statistics Canada, “Debt-to-income ratios in Canada have continued to rise since the 2008-2009 recession.” See “Spotlight on Canadians and Debt: Who’s Vulnerable?” *statscan.com*, March 5, 2019, <https://www150.statcan.gc.ca/n1/pub/11->

mortgages and credit card debt in the lead up to the crisis did not do so simply because they were irresponsible; certainly, many of us live beyond our means and consume frivolously at times, but for many, contracting debt is also a means of survival, especially when incomes do not match the cost of living and employment is increasingly precarious. Another economic crisis or set of crises are expected to develop not only from this surge in private debt, but from the escalation of public debt as well. In fact, the World Economic Forum reported in 2018 that “global debt has hit a new high of 225% of world GDP, exceeding the previous record of 213% in 2009.”³⁵

Meanwhile, many of the reforms that were planned following the crash either never materialized or have been repealed or weakened. One such reform is the Volcker Rule, intended to restrict speculative activity and to ban proprietary trading by commercial banks. By the time it finally went into effect in 2015, it had become severely weakened by the exceptions demanded by lobbyists. What remains of the Volcker Rule, and the larger set of reforms of the Dodd Frank

[627-m/index-eng.html](#). As of March 2018, the average debt-to-income ratio in Canada was \$1.71, nearly double the ratio thirty years ago. See Jennifer Wells, “Springtime is Here and Debt is Blooming,” *thestar.com*, March 13, 2018,

<https://www.thestar.com/business/opinion/2018/03/13/springtime-is-here-and-debt-is-blooming.html>. According to Statistics Canada this ratio (credit market debt for every dollar of household disposable income) increased in the third quarter of 2018 to \$1.78. See “The Daily-National Balance Sheet and Financial Flow Accounts Third Quarter” *statscan.com*, Friday, Dec. 14, 2018, <https://www150.statscan.gc.ca/n1/daily/quotidien/181214/dq181214-eng.html>.

³⁵ Sir Howard Davies, “This is What You Need to Know About Global Debt” in Global Agenda, World Economic Forum, weforum.org, June 20, 2018, <https://www.weforum.org/agenda/2018/06/the-anatomy-of-global-debt>. Also see Bodo Ellmers, “Things to Watch in 2019: Debt and Emerging Debt Crisis” in CADTM, Committee for the Abolition of Illegitimate Debt, *cadtm.org*, January 18, 2019, www.cadtm.org/Things-to-watch-in-2019-Debt-and-emerging-debt-crises; and Yanis Varoufakis, et al., “ten years after the crash: have the lessons of Lehman been learned?” *theguardian.com*, September 14, 2018, <https://www.theguardian.com/commentisfree/2018/sep/14/the-panel-lehman-brothers-ten-year-anniversary-financial-crash>.

Act, is vulnerable to further erosion under the Trump administration.³⁶ Meanwhile, in 2017, the European Commission abandoned attempts to enact their own version of the Volcker Rule, which would have forced the break-up of EU banks that were “too big to fail.”³⁷

While the timidity of attempts to better regulate the global financial system surely has something to do with the political sway of financial industries, the collapse and its aftermath cannot solely be attributed to a small clique of evil bankers and investors. Some scholars, applying a Foucauldian analysis to the crisis, have argued that the behaviors leading to and following from the crisis stem also from the internal dynamic of neoliberalism: the logic of governance through risk.³⁸ In the lead up to the financial crisis, the regulation and management of financial risks was largely outsourced to sophisticated computer-based risk models.³⁹ As a way of forecasting and thus guiding increasingly complex transactions, their accuracy became

³⁶ Renae Merle, “Federal Reserve Votes Ease Rule Aimed at Preventing Big Banks from Making Risky Financial Bets,” *thewashingtonpost.com*, May 30, 2018, https://www.washingtonpost.com/news/business/wp/2018/05/30/wall-street-is-about-to-snag-one-of-its-biggest-victories-of-the-trump-era/?utm_term=.9593380d83e0.

³⁷ Huw Jones, “EU Scraps its Answer to U.S. Volcker Rule for Banks,” *reuters.com*, October 24, 2017, <https://www.reuters.com/article/us-eu-banks-regulations/eu-scraps-its-answer-to-u-s-volcker-rule-for-banks-idUSKBN1CT285?il=0>

³⁸ See, for example, John G. Glenn, *Foucault and Post-Financial Crises: Governmentality, Discipline and Resistance*, (Cham: Switzerland: Palgrave MacMillan, 2019); Martijn Konings “Governing the System: Risk, Finance, and Neoliberal Reason” in *European Journal of International Relations* 22, no. 2 (2016): 268; and John Morris, *Securing Finance, Mobilizing Risk: Money Cultures at the Bank of England*, (London: Routledge, 2018).

³⁹ While financial risk modelling predated the neoliberal era, the application of computers to these mathematical models allowed for extremely complex calculations of probabilities in relation to market, credit, and operational risks. Since the 1980s, the use of financial risk modelling has grown so common that it now plays a major role in pricing financial instruments and regulating investment activities. See Jon Danielsson, “The Emperor has no Clothes: Limits to Risk Modelling,” *Institute of Economic Studies, Working Paper Series* (June, 2000).

ever more difficult to evaluate, so that few actors in the financial system could detect the true instability of the system.⁴⁰ Compounding this overreliance on models was the bias towards short term outcomes, a general failure to consider systemic risk, and a lack of personal responsibility or judgment among the actors involved.⁴¹ Since the crisis, financial risk management strategies have attempted to overcome the limits of risk modelling by focusing probability calculations on pre-emptive surveillance.⁴² However, the attempt to build a more resilient market by these means is, as Glenn points out, the “continuation of the distinctive rationality of neoliberal financial governmental techniques used prior to the crisis.”⁴³ The employment of risk management strategies in the global financial system is an example of governmental rationality, or what Rose and Miller define as “styles of thinking, ways of rendering reality thinkable in such a way that it is amenable to calculation and programming.”⁴⁴ It is also part of the larger logic of calculative

⁴⁰ Eric F. Gerding, “Code, Crash, and Open Source: The Outsourcing of Financial Regulation to Risk Models and the Global Financial Crisis,” *Washington Law Review* 84, no. 127 (2009).

⁴¹ In an article first published just 5 days before Lehman brothers collapsed, Dymski discusses how risk management strategies are generating ever more undetected risks: “The industrial logic of competition in the financial industry – which makes this industry incapable of policing its own risk-taking – generates risk at high levels of volume that can easily swamp case-by-case supervisory control protocols. So aside from their responsibilities for case-by-case accretions of risk, regulators must pay attention to, anticipate, and block behaviors and innovations whose systemic consequences for aggregate financial risk can jeopardize financial infrastructure.” See Gary A Dymski, “Financial Risk and Governance in the Neoliberal Era,” *Managing Financial Risks: From Global to Local*, ed. Gordon L. Clark, Adam D. Dixon, and Ashby HB Monk, (Oxford: Oxford University Press, 2009): 48-68. Also see Tony Porter, “Risk Models and Transnational Governance in the Global Financial Crisis: The Cases of Basel II and Credit Rating Agencies,” *Global Finance in Crisis*, (London: Routledge, 2010): 70-87.

⁴² Glenn, “Foucault and Post-Financial Crises”, 122

⁴³ *Ibid*, 141

rationality within modernity itself: the attempt to capture and contain uncertainty via objectification, quantification, and categorization, while simultaneously reaping the rewards that come with risk. According to Konings, “rather than transcending risk calculus, the [post crisis financial] reforms have consolidated our reliance on it.”⁴⁵ That is, the techniques used to calculate and mobilize risk generated unforeseen *systemic* risk, and yet, the response has been to refine those same techniques, rather than to question the nature of those techniques themselves.

Finally, I want to consider what “too big to fail” really means for our relationship to the systems we inhabit in modernity. Naturally, the citizens of many nations were appalled and embittered by the bailouts given to the banks and other financial institutions after the collapse of the global financial system in 2008. At the same time, the possible alternative seemed too frightening to consider: if such financial institutions were allowed to collapse the domino effect on the global economy as a whole might have been even more devastating, destroying the very trust and credit by which it remains buoyant and upon which (for better or worse) societies are organized. That the post-crisis regime of austerity for citizens and bailouts for the banks was tolerated at all suggests that it was preferable to the chaos that might follow from the self-destruction of capitalism.⁴⁶ But what does it mean that the greatest rationale for sustaining a

⁴⁴ Peter Miller, and Nikolas Rose. *Governing the Present: Administering Economic, Social and Personal Life*, (Cambridge: Polity, 2008), 16.

⁴⁵ Konings “Governing the System,” 273.

⁴⁶ That Capitalism’s self-destruction really appeared imminent is attested to by David Harvey: “When the banks stopped lending and credit froze in the wake of the Lehman collapse on Sept 15th 2008, the survival of capitalism was threatened and political power went to extraordinary lengths to loosen the constrictions. It was a matter of life or death for capital as everyone in power recognized.” See David Harvey, “The Enigma of Capital and the Crisis this Time,” *American Sociological Association Meetings*, 16 (August, 2010).

failing system is fear of the (unknown) alternative? Rather than serving the interests of society, such a system is converted- through our collective suspension of disbelief- into a totalizing, all powerful force that commands our allegiance no matter what ill-treatment we receive. Thatcher's TINA – there is no alternative- lives on. Of course, we cannot know what would have happened if the big banks had been allowed to fail. It may not have led to chaos. But by feeding that dragon we have definitely reinforced its power over us. As some commentators noted at the time of the bailouts, the problem wasn't simply that some financial institutions were "too big to fail", but that they were "too interconnected" or "too complex" to be allowed to fail.⁴⁷ The financial crisis revealed the degree to which the financial system, the economy and society are integrated globally, and the inescapable complexity of the systems we rely upon in modernity.

Climate Change

Our adherence to the momentum of modernity and to the logic of limitless growth has not wavered even in the face of a definitive limit: the looming threat to our species' survival presented by climate change. Each year, scientific and popular consensus that we are witnessing the effects of anthropogenic climate change seems to grow. Yet technocratic and market-based solutions continue to dominate the attention and activities of the national and global organizations charged with steering us towards "carbon neutrality." This approach may be politically feasible, but the focus on technological fixes, from hybrid cars to geo-engineering,

⁴⁷ See, for example, Michael Gofman, "Efficiency and Stability of a Financial Architecture with Too-Interconnected-to-Fail Institutions," *Journal of Financial Economics* 124, no. 1 (2017): 113-146; M. D. Knight, "Mitigating Moral Hazard in Dealing with Problem Financial Institutions: Too Big to Fail? Too Complex to Fail? Too Interconnected to Fail?" *Financial Crisis Management and Bank Resolution*, (London: Informa, 2009): 257; and J.P. Hawley, "Dodd-Frank, Financial Institution Rescues and Financial Crisis: The Problem of Too Interconnected to Fail," *Revue d'Economie Financiere* 105, no. 3 (2012): 251-263.

tends to distract from more systematic responses, further deferring the moment of change.⁴⁸ The same is true for the carbon market, in which emissions are measured, commodified, traded and speculated upon.

According to Pierson and Böhm, the overwhelming political support for carbon trading as the key response to global warming, originating with neoliberal economic theory in the 1970s and 1980s, and the formation of green-corporate partnerships in the 1990s, can only serve to exacerbate existing problems.⁴⁹ In more than two decades of carbon trading, the emissions reductions have been negligible, and the problems have been many: the carbon market allows governments and industries to avoid focusing on decarbonisation, provides fossil fuel industries with loopholes and massive subsidies and aggravates the environmental injustice suffered by more vulnerable populations.⁵⁰ The carbon market has also been plagued with corruption and the shell-games of financial speculation.⁵¹ Continued reliance on Carbon trading as a solution to

⁴⁸ See, on the topic of solar geo-engineering for example, Albert C. Lin, “A Potentially Disastrous Distraction to Climate Change” in *sfchronicle.com*, December 21, 2017, <https://www.sfchronicle.com/.../A-potentially-disastrous-distraction-to-climate-124492>. Also see Josh Eastin, Reiner Grundmann, and Aseem Prakash, “The Two Limits Debates: ‘Limits to Growth’ and Climate Change,” *Futures* 43, no. 1 (2011): 16-26.

⁴⁹ Rebecca Pearse and Steffen Böhm, “Ten Reasons Why Carbon Markets Will Not Bring About Radical Emissions Reduction,” *Carbon Management* 5, no. 4 (2014): 3.

⁵⁰ Pearse and Böhm, “Ten reasons why,” 5. See also, Oscar Reyes, “EU Emissions Trading System: Failing at the Third Attempt,” *Carbon Trade Watch and Corporate Europe Observatory*, (2011); Larry Lohmann, “Review Essay: Capital and Climate Change,” *Development and Change* 42, no.2, (2011): 649; and “Carbon Trading, Climate Justice and the Production of Ignorance: Ten Examples,” *Development* 51, no. 3,(2008): 359; “S. Böhm, M.C. Misoczky, and S. Moog, “Greening Capitalism? A Marxist Critique of Carbon Markets,” *Organic Studies* 33, no.11 (2012): 1617–1638; and Kevin Smith, *The Carbon Neutral Myth: Offset Indulgences for Your Climate Sins*, (Amsterdam: Transnational Institute, 2005).

⁵¹ Europol, “Carbon Credit Fraud Causes More than 5 billion Euros Damage for European Taxpayer,” *europol.org*, December 9, 2009, <https://www.europol.org>.

climate change betrays the persistence of a “utopian faith in pricing”: the idea that nature can be measured and made into marketable units, that the laws of the market can wisely govern and join together economic growth and emissions reductions.⁵² But carbon markets reveal our addiction not only to the disembedding logic of markets, but also to the universal application of scientific knowledge and technocratic governance. Together, economics, scientism and technocracy have “re-gear[ed] questions of sustainability away from being moral and environmental issues to being technical problems resolvable through economic calculation.”⁵³

Likening our climate-impacting behaviours to addiction is not unusual, but, as with the current biomedical approach to substance addiction, the diagnosis tends to fixate on the *substance* and not the underlying cause or *context* of the addiction.⁵⁴ For some time now we have heard it said that “we are addicted to oil” or fossil fuels. In fact, in a 2008 United Nations Environment Programme publication entitled “Kick the Habit: A UN Guide to Climate Neutrality, the preface begins: “Addiction is a terrible thing. It consumes and controls us, makes us deny important truths and blinds us to the consequences of our actions. Our society is in the

europa.eu/content/press/carbon-credit-fraud- causes-more-5-billion-euros-damage- european-taxpayer-1265%20/.

⁵² Pierse and Böhm, “Ten Reasons Why,” 8; Larry Lohmann, “Uncertainty Markets and Carbon Markets: Variations on Polanyian Themes,” in *New Political Economy* 15, no.2 (2010): 225–230.

⁵³ Pierse and Böhm, “Ten Reasons Why,” 9.

⁵⁴ See, for example, Karen Graham, “Lives Are at Stake Unless We Break Our Addiction to Fossil Fuels,” *digitaljournal.com*, December 16, 2018, <http://www.digitaljournal.com/news/environment/lives-are-at-stake-unless-we-break-our-addiction-to-fossil-fuels/article/539092> and Wal van Lierop, “A Methadone Plan for the World’s Hydrocarbon Addiction,” *forbes.com*, November 26, 2018, <http://www.forbes.com/sites/walvanlierop/>

grip of a dangerous greenhouse gas habit.”⁵⁵ While the guide is a thoughtful and succinct account of the problem and suggests a range of actions that can be taken by industries, governments and individuals, the shadow of environmental economics looms throughout, perhaps because, unless a case can be made that acting to mitigate climate change can contribute to economic growth, the most powerful interests won’t listen. Thus, the real source of the “addiction” is not fossil fuels or carbohydrates, but rather, the economic system and governance structures which promise us endless growth by converting every problem into a series of technically manageable units. Using commodification and technocracy to deal with climate change is an irrational repetition of the logics and behaviours that caused the problem.⁵⁶ Or, as 15 year old climate activist Greta Thunberg put it at the December 2018 UN Climate Change COP24 conference:

You only speak of green eternal economic growth because you are too scared of being unpopular. You only talk about moving forward with the same bad ideas that got us into this mess, even when the only sensible thing to do is pull the emergency brake. You are not mature enough to tell it like is. . . .Until you start focusing on what needs to be done rather than what is politically possible, there is no hope. . . . We need to keep the fossil fuels in the ground, and we need to focus on equity. And if solutions within the system are so impossible to find, *maybe we should change the system itself*.⁵⁷

The Global Refugee Crisis

The larger lessons not learned from the global financial crisis and our continued prioritization of endless economic growth over environmental sustainability are just two –admittedly huge-

⁵⁵Alex Kirby, *Kick the Habit: a UN Guide to Climate Neutrality* (UNEP/Earthprint, 2008), digital.library.unt.edu/ark:/67531/metadc28573.

⁵⁶ John O’Neil, “Markets and the Environment: the Solution is the Problem,” in *Economic and Political Weekly* 36, no. 21 (May 26 - Jun. 1, 2001): 1865-1870. <http://www.jstor.org/stable/4410667>.

⁵⁷ Greta Thunberg, “Speech at UN Climate Change COP24 conference in Katowice, Poland” December 13, 2018. Transcript accessed at https://www.democracynow.org/2018/12/13/you_are_stealing_our_future_greta.

examples of our how we succumb to dictates of the systems we have created in modernity. It is not only to the dynamic of capitalism that we seem to surrender our will, but also to the classificatory logic that has shaped modern politics. Despite the international media attention given to the global refugee crisis in recent years, it is seldom acknowledged that refugee flows are not extraordinary occurrences signalling acute, emergency conditions, but rather, the systematic product and permanent feature of the Westphalian, territorial nation state system. As Peter Nyers and Rob Walker point out, the political order of sovereign states is founded upon, “the distinction between an inside and an outside, between the citizens, nations and communities within and the enemies, others and absences without.”⁵⁸ Just as the enclosure of private property by hedges and legislation created an excess population of propertyless people with no access to security, the refugee is produced by the continued fiction of the territorially bounded state. And just as the propertyless represented a threat to the integrity of the market system, the large flows of refugees we have witnessed in recent years are perceived as a threat to the integrity of the nation state system, even as goods, services, capital and information have been flowing freely

⁵⁸ Rob B.J. Walker, *Rethinking Refugees: Beyond States of Emergency*, ed. Peter Nyers, (New York: Routledge, 2006) xi. See also, Rob B.J. Walker, *Inside/Outside: International Relations as Political Theory*, (Cambridge: Cambridge UP, 1993). For other accounts of the systematic nature of refugee production please see Frank Jacob and Adam Luedtke, eds., *Migration and the Crisis of the Modern Nation State?* (Delaware, USA: Vernon Press, 2018); Charles B. Keely, "How Nation-States Create and Respond to Refugee Flows," in *The International Migration Review* 30, no. 4 (1996): 1046. doi:10.2307/2547603; Adam Ramadan, "Spatialising the Refugee Camp," *Transactions of the Institute of British Geographers* 38, no. 1 (2013): 65-77; Nevzat Soguk, *States and Strangers: Refugees and Displacements of Statecraft, Vol.11*, (Minneapolis: University of Minnesota Press, 1999); Emma Haddad, *The Refugee in International Society: Between Sovereigns, Vol. 106*, (Cambridge: Cambridge University Press, 2008); and Vanessa Miceli, "Dispossession as a Permanent Temporariness: A Comparative Reading of Poor Laws in Early Nineteenth Century England and Refugee Rights in the Age of Neoliberalism" (MA Thesis, York University, 2009).

across borders. In Bauman's terms, the ordering imperative within modernity seeks to extinguish all ambivalence, but in doing so, only creates more ambivalence.

I am not suggesting that the solution to the production of refugees is to open all borders, or that the solution to climate change is to end all industry, trade and economic activity or that we must prevent financial crises by banning financial instruments and activity. It is unlikely that such complex problems can be so easily unraveled, without unforeseen new problems arising. Rather, I am suggesting that we at least reflect on the nature of our attachment to the dream of endless growth and the logic of enclosures. As Peter Nyers puts it with regard to the state, we need to question "sovereignty's dominant hold over the political imagination" because, "while its account may be the prevailing one, it is in no way natural, normal, inevitable, or uncontested. . . . The state is neither given nor fixed" but rather, "a historical construct, created and sustained through continuous political activity."⁵⁹ Similarly, Warren Magnusson explains that "Like capitalism, the State just seems like a part of normal life, and people enact its routines— and hence re-create the State—day by day."⁶⁰ Only when we remember that the modern systems that have us in their thrall *are our own creations* - socially constructed and historically contingent creations- can we begin to see that they hold no *necessary* power over us. That is why, to compare our repetition of the logics of modernity to a compulsion is not an expression of defeat, but a call to recognize the hold they have over us and to recover our freedom.

⁵⁹ Nyers, *Rethinking Refugees*, xii

⁶⁰ Warren Magnusson, *The Search for Political Space: Globalization, Social Movements, and the Urban Political Experience, Vol. I.* (Toronto: University of Toronto Press, 1996), 293.

Kicking the Habit? Practicing New Ways of Seeing and Being

To say that modernity is compulsive is not to suggest that we are and always will be completely in its thrall. Habits are only insuperable fixed destinies when we believe them to be so. To imagine some other destiny requires first that we remove our blinders, and attend to the contingent within the compulsive. In fact, the postmodern celebration of contingency is only the latest in a long tradition of critique that seeks out openings in the edifice of modernity and asserts other ways of being in the world. There have been two main camps within this tradition—although the distinction is often overdrawn. These are, to use Boltanski and Chiapello's terms, *the social critique* and *the artistic critique*.⁶¹ The social critique involves the efforts of the working classes, other dispossessed groups and their allies to push back against the social, economic and political oppressions and dislocations of modernity, and capitalism in particular. In this camp we can include hedge-breakers and levellers, revolutionaries, suffragettes, striking workers, civil rights activists and the Occupy Wall Street movement. The aim of the social critique, broadly, has been to repair fragmented social relations, and to assert the agency and integrity of the worker, and other groups oppressed by the systems of modernity. Meanwhile, in the artistic critique, artists and philosophers have sought or counselled liberation from the alienating effects of modernity through the expression of our non-rational faculties, primarily by attending to the creativity, sensuousness, and playful spontaneity of the aesthetic realm. This aesthetic critique of modernity is closely related to the Romantic Movement, with its emphasis on bridging the

⁶¹ See Luc Boltanski and Eve Chiapello, *The New Spirit of Capitalism*, trans. Gregory Elliot (London: Verso, 2005), 38.

modern divide between nature and culture, and to the idea of enchantment, either as an inherent feature of or a countermovement to rationalist modernity.⁶²

Where each of these broad categories of critique come together is in their pursuit of a fuller and freer humanity than is realized under the conditions of modernity and capitalism. Because I cannot, here, do justice to each of these critiques and their great variety of expressions, I will limit myself to a brief discussion of the recurring themes in the aesthetic critique, for these seem to open up the possibility of thinking about the world in a different way. If we are to challenge the compulsive nature of modernity's dynamic, the first muscle of autonomy we must flex is the imagination, for it is our collective belief in the compulsion of modernity and its systems that keeps it moving forward ever faster. There are a few contemporary practices that bring together the artistic and social critique, and provide inspiring examples of how we can delegitimize some of the habits of modernity and practice other ways of being in the world.

What can liberate people who suffer from addiction or who find themselves in the grip of compulsion? There are a host of suggested common-sense practices that recur throughout recovery literature: making connections with others, recognizing your feelings, paying attention to how the mind and body are connected; bathing the senses in the world outside of your head; questioning the authority of voice inside your head that says you have no choice but to follow the

⁶² Both re-enchantment and enchantment refer to countertendencies to the disenchanting processes of rationalist modernity, as described by Weber. While some scholars conceive of re-enchantment as a response to the dominant rationalistic tendency of modernity, others have recently questioned whether we have simply overlooked how enchantment was always as much a part of modernity as disenchantment. Comprehensive accounts of the historiography and current debates on enchantment/reenchantment can be found in Richard Jenkins, "Disenchantment, Enchantment and Re-Enchantment: Max Weber at the Millennium," in *Max Weber Studies* 1 (2000); 11-32; and Michael Saler, "Modernity and Enchantment: a Historiographic Review," *American Historical Review*, (June, 2006) 692-716.

same path you have been. Creativity. Engagement. Play. Each of these suggested practices offers a way of healing the wounds of alienation, fragmentation and disenchantment which occur when we surrender our wills either to an external force, or to an inner compulsion. Interestingly, these strategies strongly resemble the core features of the aesthetic critique of modernity.

The Aesthetic Critique of Modernity

Scholars often point to Kant as the originator of the aesthetic critique, because it was his 1790 *Critique of Judgement* which first proposed the Aesthetic realm as the site where practical and theoretical reason, sensuousness and morality, nature and freedom could be united.⁶³ But it was Schiller's 1795 *Letters on the Aesthetic Education of Man*, that should be considered, as Habermas puts it, "the first programmatic aesthetic critique of modernity,"⁶⁴ because, while his concept of the aesthetic was greatly influenced by Kant's, it was conceived in direct response to the alienating condition of modernity. In a passage anticipating Marx, Weber, and Nietzsche, he lamented the rending of human nature into two opposing forces:

It was culture itself that gave these wounds to modern humanity. The inner union of human nature was broken, and a destructive contest divided its harmonious forces directly. Intuitive and speculative understanding took up a hostile attitude in opposite fields... State and Church, law and customs, were now torn asunder; enjoyment was separated from labour, means from ends, effort from reward.⁶⁵

⁶³ Herbert Marcuse, *Eros and Civilization: Philosophical Inquiry into Freud* (Boston, MA: Beacon Press, 1955), 173.

⁶⁴ Jürgen Habermas, quoted in Lydia L. Moland, "Friedrich Schiller," *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta (Summer, 2017), URL = <https://plato.stanford.edu/archives/sum2017/entries/schiller/>

⁶⁵ Friedrich Schiller, *On the Aesthetic Education of Man*, trans. and intro. by Reginald Schnell (Dover publications: New York, 2004), 39.

For Schiller, this lost harmony could only be recovered by reconciling the modern opposition between the sense drive and the form drive through the human impulse to play. The form drive represents our capacity for reason; its object is the development of universal, eternal, law-like structures. The sense drive represents our physical existence: its object is the preservation of life. In modernity, the form drive is dominant, but neither it nor the sense drive should be allowed to dominate, for alone, each leaves the human incomplete. The play drive arises spontaneously in the imagination, through the contemplation of the beautiful in art. Because it engages us simultaneously in the particular and the universal, in the spiritual and material, and in becoming and absolute being, it frees us from the compulsions and limitations that come with the imbalance of the formal and sensual drives.⁶⁶ This is why Schiller claimed that “man only plays when he is in the fullest sense of the word a human being, and *he is only fully a human being when he plays*”⁶⁷

While Schiller’s aesthetic theory has been criticised, particularly by Marxists, as an apolitical solution to the social conditions of modernity, it has also influenced a great many philosophers and artists, including some associated with the Frankfurt School, such as Marcuse and Benjamin. The liberatory potential of both art and play was also a consistent feature in the work of Nietzsche, who counselled that we become “the poets of our own lives.”⁶⁸ For

⁶⁶ William F. Wertz, Jr, “A Reader’s Guide to Letters on the Aesthetical,” *Fidelio*, 14, no.1-2 (2005): 80-104; 84, 89, http://schillerinstitute.org/fidelio_archive/2005/fidv14n01-02-2005SpSu/index.html.

⁶⁷ Schiller, Quoted in Moland, "Friedrich Schiller."

⁶⁸ In fact, there are echoes of Schiller’s opposition between the form and sense drives in Nietzsche’s discussions of the Apollonian and Dionysian forces. According to Nietzsche, each of these, “nature’s art impulses,” if not mediated by the artist, would wipe the other out. See

Nietzsche, artistic creation was not only a great consolation for the sufferings in one's life, but its strategies of illusion, distance, framing and playful experimentation could also be used to create a self and a life that one could affirm.⁶⁹ Of the three metamorphoses evoked in *Thus Spake Zarathustra*, the camel, the lion, and the child, it is only, and ultimately, the child who can positively create and affirm his own life: "The child is innocence and forgetting, a new beginning, a game, a self-propelled wheel, a first movement, a sacred "Yes." For the game of creation, my brothers, a sacred "Yes" is needed: the spirit now wills its own will, and he who had been lost to the world now conquers his own world."⁷⁰

In many expressions of the aesthetic critique, play is conceived of as activity freed from the path of instrumentality: it is "off-road", off the assembly line of useful production. If "work" is human activity colonized by systems of the state, capital, and the scientific knowledge production, then the art of play refuses this work. Against a disciplinary subjection to these

Friedrich Nietzsche. *Basic Writings of Nietzsche* (New York: Random House, Inc., 2000) 33; 38; 47.

⁶⁹ Friedrich Nietzsche, "What One Should Learn from Artists" in *The Gay Science*, Book IV, §299, trans. Walter Kaufmann (New York: Vintage Books, 1974). For a discussion about how Nietzsche's ethic of self-fashioning draws on the strategies of the ascetic ideal to affirm earthly life instead, see Steven V. Hicks and Alan Rosenberg, "Nietzsche and the Transfiguration of Asceticism: An Ethics of Self-Fashioning," in *Reading Nietzsche at the Margins*, ed. Steven V. Hicks and Alan Rosenberg (Indiana: Purdue University Press, 2008). On the affirmation of life in Nietzsche's writings, see Bernard Reginster, "Art and Affirmation," in *Nietzsche on Art and Life*, ed. Daniel Came (Oxford: Oxford University Press, 2014).

⁷⁰ Friedrich Nietzsche, *Thus Spake Zarathustra*, (New York, NY: Algora Publishing, 2003). For more on the theme of play in Nietzsche's work, see Laurence M. Hinman, "Nietzsche's Philosophy of Play," in *Philosophy Today* 18, No. 20 (Summer, 1974): 106-124.

systems, art as play fashions new forms of subjectivity.⁷¹ The art of play can jolt and jar us awake from our inert and passive habits of living, our slogging progress along Instrumental Avenue, and this is what a number of twentieth century art movements attempted to do. During the First World War, the Dadaists ripped up the borders between means and ends, between art and everyday life. The original punk rockers, they tore from art all trappings of respectability, spat upon the authority of its knowledge and traditions, and had mad anarchist fun smashing the bourgeois values it reproduced. It was a negation of art as ideology, of the progress, rationality and absurdity of modernity as exemplified in the war. But it was also, in its own way, a form of political engagement, drawing on the social movements of the previous century, reframing and experimenting with ‘repertoires of collective action’.⁷²

In the twenties, a number of Dadaists founded the Surrealist movement, which drew on Freudian and psychoanalytical insights to tap into the emancipatory potential of the unconscious. They invented a host of techniques for following the spontaneous designs of chance. In every possible medium- theatre, music, poetry, film, painting, pamphlets, maps, parades- the surrealists re-imagined the products of art as dreamlike fragments that could awaken the audience to the absurdity of the everyday artefacts and practices of modern life. Later, in the 1960s, a group of intellectuals and artists formed the Situationist International, which sought, like Dada and Surrealism, to awaken people to the lived experience of the everyday. To counter the passive spectator role imposed on subjects in the modern, capitalist city, what Guy Debord called *The*

⁷¹ Gavin Grindon, “Surrealism, Dada, and the Refusal of Work: Autonomy, Activism and Social Participation in the Radical Avant-garde,” *Oxford Art Journal* 31, no.1 (2011): 79-96; 83-4.

⁷² Grindon, “Surrealism, Dada, and the Refusal of Work,” 95.

Society of the Spectacle, they constructed ‘situations’, ‘psychogeographies’ and ‘dérives’: ways of drifting through and subverting urban space. Far from occupying an aesthetic space of critique, separate from the collective action and political protests of the “social critique”, the Situationists’ played a crucial role in the May 1968 protests in France.⁷³

Obviously, neither the Dadaists, The Surrealists, the Situationists nor other avant-garde art movements of the twentieth century “succeeded” in dismantling capitalism, halting modernity’s march of progress, or eradicating alienation. Critics of such radical avant-garde art movements have pointed to the ease with which their creations were simply incorporated by the forces of the market, or have dismissed them as mere diversions from the systems that overwhelm us in modernity.⁷⁴ However, not only have their accumulated repertoires continued to inspire new ways of re-imagining and re-fashioning our way of being in the world, but the effort to awaken ourselves from compulsive modernity should be understood as an ongoing project, not a task to be performed once, checked off a list, and forgotten. New ways of engaging in the world we are given, that challenge the force and legitimacy of the juggernaut of modernity, are being born every moment.

Contemporary Practices of Social and Aesthetic Critique

A more recent practice that literally embodies liberatory potential within the structures of modernity is the art of parkour. Parkour originated in the 1980s with the training methods of a small group of young men, led by David Belle and Sébastien Foucan in a suburb of Paris. This

⁷³ Alistair Bonnett, “Art, Ideology, and Everyday Space: Subversive Tendencies from Dada to Postmodernism,” in *Environment and Planning D: Society and Space*, 10 (1992): 69-86.

⁷⁴ Jane Bennet, “Modernity and its Critics,” in *The Oxford Handbook of Political Science*, ed. by Robert E. Goodin (Oxford: Oxford University Press, 2011) 8.

training involved maneuvering the body in multiple ways (running, jumping, climbing, vaulting etc.) to negotiate the most direct course of movement through the obstacles of the urban landscape. Parkour comes from the word *parcours*, meaning a course or a route, and those practicing it call themselves *traceurs*, from the word for bullet, meaning that they aim to move like a bullet through obstacles.⁷⁵ While the original *traceurs* did not conceive of parkour as political, their practice and its associated philosophy has been viewed by many as a profound expression of emancipatory politics.⁷⁶

In parkour, Belle once explained, “You always have to get through the first obstacle that says, ‘I can’t do it,’ whether in your mind or for real, and be able to adapt to anything that’s put in your path. It’s a method for learning how to move in the world. For finding the liberty men used to have.”⁷⁷ (Wilkinson). Parkour’s practitioners see it as more of an art, a way of thinking and being, than as a sport. It is not about performing acrobatic feats to compete with or impress others but rather, the practice of continually encountering and moving through fear and other limitations. By physically negotiating the obstacles of the built environment, *traceurs* both call

⁷⁵ Matthew Lamb, "Negating the Negation: The Practice of Parkour in Spectacular City," *Kaleidoscope* 9, no. 6 (2010), 93-94.

⁷⁶ See, for example, Sophie Fuggle, "Discourses of Subversion: The Ethics and Aesthetics of Capoeira and Parkour," in *Dance Research* 26, no. 2 (2008): 204-205; Michael Atkinson, "Parkour, Anarcho-environmentalism, and Poiesis," in *Journal of Sport and Social Issues* 33, no. 2 (2009): 169-194; Nathaniel Bavinton, "From Obstacle to Opportunity: Parkour, Leisure, and the Reinterpretation of Constraints," in *Annals of Leisure Research* 10 no. 3-4, (2007): 391-412; and M. Daskalaki, A. Stara, and M. Imas, "The Parkour Organisation: Inhabitation of Corporate Spaces," in *Culture and Organization* 14 no. 1 (2008): 49-53.

⁷⁷ Quoted in Alec Wilkinson, "No Obstacles: Navigating the World by Leaps and Bounds" in *newyorker.com*, April 9, 2007, <https://www.newyorker.com/magazine/2007/04/16/no-obstacles>.

attention to and improvise a path through the obstructive presence of corporate, bureaucratic and governmental structures in the human environment. Like the *dériveur* (“drifter”) of the Situationists, *traceurs* subvert the oppressive and repressive spaces of the modern city, seeing it differently and engaging in it freely. Whereas the aim of the *dériveur* is to counter the calculative rationality of the city by wandering aimlessly and invoking new meanings in the found environment, *traceurs*, in seeking to move ever forward by the most efficient passage through space, appear to perform the calculative rationality of modern space. Debord had argued that modern society, especially the city, is turned by Capital into mere “spectacle” as abstract representations increasingly mediate social relations. Parkour, according to Lamb, speaks back to the spectacle in the language of the spectacle. At the same time, because its spectacle is embodied, it “functions to reinscribe the “pre-eminence once occupied by touch” by falsifying the false reality of the spectacle, through spectacle, at once bringing to the fore and negating its unconscious domination.”⁷⁸

In Parkour, the recurring themes of aesthetic response to modernity are revived: the improvisation of play, the assertion of the body and the senses, engagement in the world and with others. The *traceurs* engage in dialogue in a space that demands a mute consumption of the spectacle. They draw on intuition and somatic knowledge to move and touch their way through a “world that can no longer be grasped.”⁷⁹ They are not solving problems; they are practicing

⁷⁸ Lamb, “Negating the Negation,” 92.

⁷⁹ Guy Debord, *Society of the Spectacle*” in *Guy Debord and the Situationist International: Texts and Documents*, ed. Tom McDonough (Cambridge, MA.: MIT Press, 2002). For the embodied practice of Parkour, see Jimena Ortuzar, “Parkour or L'art du Déplacement: A Kinetic Urban Utopia,” *The Drama Review* 53, no. 3 (2009): 54-58; K.A. O'Grady, “Tracing the

freedom. For some, this practice provides a crucial respite from the experience of powerlessness particular to sites of protracted conflict. Like many young people around the world a group of boys living in the Khan Yunis refugee camp in Gaza were inspired by video footage of parkour shared on the internet. Ahmad Matar and a few of his friends went on to form Gaza Parkour, a team of twelve, who now travel worldwide to perform. He explained in an interview that parkour “was the only thing I could do, and the only thing that helped me to keep hope that the future is coming...for us in Gaza, we practiced parkour to feel our freedom.”⁸⁰

Another loose, “grassroots” social movement that subverts the infrastructure of modernity, is “guerrilla gardening.” In recent decades, this movement has arisen spontaneously in different places, with individuals and small groups planting gardens in neglected public and private properties *without permission*. Some years ago, before I had ever learned that this sort of activity had been given a name, a friend of mine told me about one individual’s illicit gardening efforts in a large public park in Toronto. Situated in a low-income neighbourhood in North York, this park was avoided by residents, and underserved by the parks department. On her own walks through the park, however, my friend had noticed an elderly man who, year by year, had transformed a hillside into a terraced flower garden. We had been talking about how to find spaces in the modern world that were unofficial, un-designed by formal processes, and I was

City - Parkour Training, Play and the Practice of Collaborative Learning,” in *Theatre Dance and Performer Training* 3, no.2 (2012): 145-149.

⁸⁰ Sarah Illingworth, “Q&A/ Ahmad Matar: Learning Parkour in Gaza Made Me Feel Free,” *impolitikal.com*, January 31, 2017, <https://impolitikal.com/2017/01/31/qa-ahmad-matar-learning-parkour-in-gaza-made-me-feel-free/>.

struck by this image of an old man raising and tending new life, bringing beauty to a public space in quiet defiance of officialdom.

While many “guerrilla gardeners,” do not necessarily identify themselves with that label, or consider themselves as part of a movement with one shared set of motivations, they are alike in their embodied refusal of prevailing property conventions. Like the *traceurs*, guerilla gardeners disregard the authority inhering in the obstacles and boundaries of the built space of modernity in order to affirm some other way of inhabiting their environment. Some, like the man in my friend’s story, simply want to cultivate flowers either to express beauty for the love of gardening itself. Others cultivate food crops in order to draw attention to and redress food injustice. Ron Finley, for example, drew the ire of LA city officials in 2011, when he cultivated a vast range of vegetables on the strip of land between the sidewalk and the street in front of his house in South Central Los Angeles. New to gardening, and long frustrated with the dearth of places to purchase fresh produce in his low-income, largely African-American neighbourhood, Finley saw that strip of litter-strewn dirt as the obvious place to grow food. Soon, neighbours began to stop and talk to him about the garden, and those in need were invited to share in the tomatoes, peppers, melons, squash, pumpkins, onions, broccoli, eggplant, kale and herbs that he had grown. Then, city officials then came along to demand that he remove the “obstructions” from the city property. He was cited a number of times and when he refused to pay the fines a warrant for his arrest was issued.⁸¹ Fortunately, he had the community, other “green activists,” and the media behind him. People recognized the absurdity of forbidding food cultivation on

⁸¹ Steve Lopez, “In the Weeds of Bureaucratic Insanity There Sprouts a Small Reprieve,” *latimes.com*, August 20, 2011, <http://articles.latimes.com/2011/aug/20/local/la-me-0821-lopez-garden-20110818>.

land that was not used for any other purpose- even while residents were permitted to waste the city's limited water supply by watering turf on these strips. Not only did the arrest not take place, but, in 2013, the LA city council voted to change the law, so that now people are allowed to grow food on the "parkway" strips in front of their homes.⁸²

Few activities can be as life affirming as growing food for yourself and your neighbours, or converting the deindustrialized, abandoned spaces of a city into something beautiful. Few activities are at once, as aesthetically expressive, sensually engaging and embedded in nature and community as public gardening. This is the kind of labour that is infused with, rather than juxtaposed with play. Moreover, as Nick Blomley has argued, "Gardening presents a useful and accessible category for exploring the ways people think about and act in relation to property, in part because of its practical, embodied and geographical qualities."⁸³ Not only in guerrilla gardening, but also in other kinds of public gardening projects people tend to create "overlapping and multiple claims" to property which challenge the hegemonic conception of it as a commodity exclusively owned by sovereign individuals. To disregard or blur the existing boundaries of property opens up the possibility of boundaries that are 'uncertain, intersubjective, and layered.'

⁸² Rose Heydon-Smith, "They Tried to Arrest me for Planting Carrots" in *ucfoodobserver.com*, February 26, 2015, <http://ucfoodobserver.com/2015/02/26/they-tried-to-arrest-me-for-planting-carrots/>; Amy Scattergood, "In the Dirt with Ron Finlay "the Gangsta Gardener"" *latimes.com*, May 19, 2017, <https://www.latimes.com/food/dailydish/la-fo-ron-finley-project-20170503-story.html>.

⁸³ Nick Blomley, "Un-Real Estate Proprietary Space and Public Gardening," in *Neoliberal Environments: False Promises and Unnatural Consequences*, ed. by Nik Heynen, James McCarthy, Scott Prudham, and Paul Robbins (Routledge: London & New York, 2007): 180.

It is a kind of commoning practice, a way of unsettling core categories of modernity such as property, by questioning the authority we have vested in those categories.⁸⁴

Most scholars view Parkour and guerrilla gardening as forms of protest: as graffiti art, squatting and a host of other practices of resistance, they are ways of marking or occupying the otherwise disempowering spaces of modernity and capitalism, particularly in urban centres.⁸⁵ Like those other practices, they are also subject to various critiques. Guerrilla gardening, for instance, has been criticized for eliding the democratic processes by which decisions about the use of public space should be made. And against all such practices- non-violent, mildly subversive, highly symbolic, and loosely organized if at all, it can be argued that real change must happen from within the formal structures and processes of the power that they wish to challenge. This formal approach to social change has its merits; many important rights have been realized in this way. But when what is being challenged is so large, complex, many headed, and irrational a force as the habit of modernity itself, forms of resistance that are oblique, informal, divergent and creative are, I would argue, especially capable of igniting change where it is most needed: in the imagination.

There is another criticism that has been levelled at the practices associated with the “artistic” critique: they have historically been prone to co-option by the processes and systems that they seek to challenge. This is undeniable: just as graffiti was co-opted by the academy, the

⁸⁴ Blomley, “Un-real Estate,” 184, 187.

⁸⁵ For guerrilla gardening as political practice see G. A. McCay, *Radical Gardening: Politics, Idealism and Rebellion in the Garden* (London: Frances Lincoln, 2011) and Sandrine Baudry, “Reclaiming Urban Space as Resistance: the Infrapolitics of Gardening,” in *Revue Francaise, d’études Américaines* 1 (2012) 32.

art market, and advertisers, so has parkour migrated to YMCAs, action movies and advertisements. Like graffiti, capoeira, rap and jazz, like yoga and wilderness camping, the market especially, seizes hold of every expression of adventure, beauty, authenticity, and subversion, turns every critique against it into more spectacle. But this is no reason for people to stop inventing new and joyful, weird and wakeful ways of being in the world. I doubt that such inventiveness can be quelled anyway. Rather, we should see in such creative practices, the diversity and abundance, the enduring will that humans have to affirm our lives outside of the dominant logics of modernity. If we are to overcome the illusion that those logics are inescapable, we need to continue carving out spaces for thinking and acting differently, and to recognize the ways in which we are already free.

What I think holds us back from recognizing our freedom is our continued discomfort with the uncertainty that accompanies it- for we are freest but most exposed to uncertainty whenever we step away from the legitimacy of modern shelters. That is, private property, the nation state, scientific and academic knowledge, law and the media, continue to provide us with guides for proper behaviour in a time when most other forms of guidance have fallen away. Thus, when a solution to an intractable modern problem appears, but does not fall under these shelters of legitimacy, we try to make it fit, to have it legitimized, by naming it, measuring and mapping it, categorizing and calculating its probable future. In doing so, we undermine its potential as an alternative way of doing things, unmediated by modern logics. What is needed, ironically, is to embrace the revolutionary impulse that founded modernity: to dethrone the legitimacy of these modern shelters.

In the modern dynamic the act of dethroning has always been followed by a sense of groundlessness and doubt, and then by an anxiety to impose order upon ambivalence, by creating

new forms of certainty and legitimacy. Instead of this, we might need to find some way of accepting groundlessness and uncertainty. We might need to stem our impulse to name, record, assign, and enclose whatever forms of wilderness we come upon. We might live differently if we recognized and cherished all the unassigned spaces and unnamed experiences of the world, the concrete and particular, the unofficial and informal exchanges by which we already live.

BIBLIOGRAPHY

- Abdelal, Rawi and John G. Ruggie, “The Principles of Embedded Liberalism: Social Legitimacy and Global Capitalism.” In *Perspectives in Regulation*, edited by David Moss and John Cisternino, 151-162. Cambridge, MA: The Tobin Project, 2009.
- Abraham, Kenneth. *The Liability Century: Insurance and Tort Law Reform from the Progressive Era to 9/11*. Cambridge: Harvard University Press, 2008.
- Adams, Henry. *The Education of Henry Adams*. Oxford: Oxford University Press, 2008.
- Adorno, Theodore and Max Horkheimer (1944) “The Culture Industry: Enlightenment as Mass Deception.” In *The Dialectics of Enlightenment*, edited by Theodore Adorno and Max Horkheimer; translated by John Cumming. New York: Herder and Herder, 1972.
- Adorno, Theodore. *Dialectic of Enlightenment: Philosophical Fragments*. Translated by E. Jephcott, edited by G. Schmid Noerr. Stanford, CA: Stanford University Press, 2002.
- Agamben, Giorgio. *Homo Sacer: Sovereign Power and Bare Life*. Translated by Daniel Heller-Roazen. Stanford: Stanford University Press, 1995.
<http://korotonomedia2.googlepages.com/GiorgioAgamben-HOMOSACERSovereignPow.pdf>.
- Agas, Ralph. *A Preparative to Platting of Landes*. London: Thomas Scarlet, 1596.
- Aigner, Ernest, Matthias Aistleitner, Florentin Glötzl and Jakob Kapeller, “The Focus of Academic Economics: Before and After the Crisis.” Working Paper No. 75, May, 2018. *Institute for New Economic Thinking*. <https://rwer.wordpress.com/2018/09/03/after-the-crisis-business-as-usual/>.
- Alborn, Timothy. “Normal Bodies, Normal Prices: Interdisciplinarity in Victorian Life Insurance.” *RAVON Romanticism and Victorianism on the Net*, 49 (Feb, 2008): 1-30.
- Alborn, Timothy. *Regulating Lives: Life Insurance and British Society, 1800-1914*. Toronto: University of Toronto Press, 2009.
- Alexander, Bruce K. “The Globalization of Addiction.” *Addiction Research* 8, no.6 (2000): 501-526.
- Alexander, Bruce K. *The Roots of Addiction in Free Market Society*. Vancouver, BC: The Canadian Centre for Policy Alternatives, 2001.
- Allan, James P. and Lyle Scruggs. “Political Partisanship and Welfare State Reform in Advanced Industrial Societies.” *American Journal of Political Science* 48, no. 3 (2004): 496–512.
- Althusser, Louis. “Ideology and Ideological State Apparatuses (Notes towards an Investigation).” In *The Anthropology of the State: A Reader*, edited by Aradhana Sharma, Akhil Gupta, 86-111. Oxford: Blackwell, 2006.

- Althusser, Louis. *For Marx*, Vol. 2. London: Verso, 2005.
- Andersen, J.G. (2012). *Welfare States and Welfare State Theory*. Aalborg, Denmark: Centre for Comparative Welfare Studies, Aalborg Universitet, 2012.
- Appadurai, Arjun. "Numbers in the Colonial Imagination." In *Orientalism and the Postcolonial Predicament: Perspectives on South Asia*, edited by C.A. Breckenridge and P. van der Veer, 314-340. Philadelphia: University of Pennsylvania Press, 1999.
- Appadurai, Arjun. *Modernity at Large: Cultural Dimensions of Globalization*, Vol. 1. Minneapolis: University of Minnesota Press, 1996.
- Aradau, Claudia and Rens van Munster. "Insuring Terrorism, Assuring Subjects, Ensuring Normality: The Politics of Risk after 9/11." *Alternatives: Global, Local, Political* 33, no. 2, (2008): 191-210.
- Aradau, Claudia and Rens van Munster. "Governing Terrorism through Risk: Taking Precautions, (Un)knowing the Future." *European Journal of International Relations* 13, no. 1 (2007): 89-115.
- Armitage, David. *The Ideological Origins of the British Empire*. Cambridge: Cambridge University Press, 2000.
- Armstrong, Tim. "Slavery, Insurance, and Sacrifice in the Black Atlantic." In *Sea Changes: Historicizing the Ocean*, edited by Bernhard Klein and Gesa Mackenthun, 167-185. London: Routledge, 2012.
- Armstrong, Tim. *Modernism: A Cultural History*. Vol. 1. Cambridge, UK: Polity Press, 2005.
- Ash, Eric H. *The Draining of the Fens: Projectors, Popular Politics, and State Building in Early Modern England*. Baltimore, MD: Johns Hopkins University Press, 2017.
- Ashton, Thomas Southcliffe. *An Economic History of England: The Eighteenth Century*. Abington, UK: Routledge, 2013.
- Atkinson, Michael. "Parkour, Anarcho-environmentalism, and Poiesis." *Journal of Sport and Social Issues* 33, no. 2 (2009): 169-194.
- Avery, John. *Progress, Poverty, and Population: Re-reading Condorcet, Godwin, and Malthus*. Hove, UK: Psychology Press, 1997.
- Bacon, Francis, (1620). "The Great Instauration." In *Selected Writings of Francis Bacon*, introduced by Hugh G. Dick, 423-451. New York: The Modern Library, 1955.
- Bacon, Francis, (1620). *Novum Organum*, (The New Organon: Or, Directions Concerning the Interpretation of Nature). http://www.constitution.org/bacon/nov_org.htm.

- Bacon, Francis. "Proceedings in the Parliaments of Elizabeth." In Robert P. Ellis, *Francis Bacon: The Double Edge Life of the Philosopher and Statesman*. Jefferson, NC: McFarland & Co., 2015.
- Baehr, Peter. "The 'Iron Cage' and the 'Shell as Hard as Steel': Parsons, Weber, and the Stahlhartes Gehäuse Metaphor in the Protestant Ethic and the Spirit of Capitalism." *History and Theory* 40, no. 2 (May, 2001): 153-169.
- Baer, Hans A. *Global Capitalism and Climate Change: The Need for an Alternative World System*. Lanham, Maryland; Rowman Altamira, 2012.
- Baffour, Bernard, Thomas King, and Paolo Valente. "The Modern Census: Evolution, Examples and Evaluation." *International Statistical Review* 81, no. 3 (2013): 409
- Bailey, Ian and Geoff A Wilson. "Theorizing Transitional Pathways in Response to Climate Change: Technocentrism, Ecocentrism, and the Carbon Economy." *Environment and Planning A*, 41 (2009): 2324-2341.
- Baker, Tom, "Containing the Promise of Insurance: Adverse Selection and Risk Classification." In *Risk and Morality*, edited by Richard V. Ericson, Aaron Doyle, 258-282. Toronto: University of Toronto Press, 2003.
- Baker, Tom and Jonathan Simon, eds. *Embracing Risk: the Changing Culture of Insurance and Responsibility*. Chicago: University of Chicago Press, 2010.
- Baker, Tom. "Insurance and the Law." *University of Connecticut School of Law Articles and Working Papers*, no. 5 (2002): 1-14. http://lsr.nellco.org/uconn_wps/5.
- Baker, Tom. "Insurance in Sociological Research." *Annual Review of Law and Social Science*, 6 (2010): 433-447.
- Baker, John. "Real Property: Feudal Tenure." In *An Introduction to English Legal History*. London: Butterworths, 1979.
- Baldwin, Peter. *The Politics of Solidarity: Class Bases of the European Welfare State, 1875-1975*. Cambridge: Cambridge University Press, 1990.
- Balen, Malcolm. *A Very English Deceit: the South Sea Bubble and the World's First Great Financial Scandal*. London and New York: Fourth Estate, 2002.
- Bannister, R.C. *Sociology and Scientism: The American Quest for Objectivity, 1880-1940*. Chapel Hill, NC: UNC Press Books, 2014.
- Barber, Peter. "Mapmaking in England, ca. 1470-1650." In *The History of Cartography, Cartography in the European Renaissance*, edited by David Woodward. Chicago, University of Chicago Press 2007.
- Barnard, Toby Christopher. "The Hartlib Circle and the Cult and Culture of Improvement in Ireland." In *Samuel Hartlib and Universal Reformation: Studies in Intellectual*

Communication, edited by Mark Greengrass, Michael Leslie, and Timothy Raylor, 281-297. Cambridge: Cambridge University Press, 2002.

Barthes, Roland. *Mythologies*. Montreal, Canada: Le Seuil, 2015

Baudry, J. R. G., H. Bunce, and F. Burel. "Hedgerow Diversity: An International Perspective on their Origin, Function and Management." *Journal of Environmental Management*, 59 (2000)1-16. Doi:10.1006/jema.2000.0358, available online at <http://www.idealibrary.com>.

Baudry, Sandrin. "Reclaiming Urban Space as Resistance: the Infrapolitics of Gardening." *Revue Francaise Detudes Americaines*, 1 (2012) 32-48.

Bauman, Zygmunt. *Liquid Modernity*. Cambridge: Polity Press, 2000.

Bauman, Zygmunt. *Modernity and Ambivalence*. Ithaca, New York: Cornell University Press, 1991.

Bavinton, Nathaniel. "From Obstacle to Opportunity: Parkour, Leisure, and the Reinterpretation of Constraints." *Annals of Leisure Research* 10 no. 3-4, (2007): 391–412.

Bayatrizi, Zohreh. "From Fate to Risk: The Quantification of Mortality in Early Modern Statistics." *Theory, Culture & Society* 25, no. 1 (2008): 121-143.

Beck, Ulrich, Anthony Giddens, and Scott Lash. *Reflexive Modernization: Politics, Tradition and Aesthetics in the Modern Social Order*. Stanford, CA: Stanford University Press, 1994.

Beck, Ulrich. *Risk Society: Towards a New Modernity*. London: Sage, 1992.

Beck, Ulrich. *World Risk Society*. Cambridge: Polity Press, 1999.

Beck, Ulrich. "World Risks Society, Revisited." *Theory, Culture & Society* 19, no.4 (2002): 39–55.

Becker, M. B. "Individualism in the Early Italian Renaissance: Burden and Blessing." *Studies in the Renaissance* 19 (1972): 273-297.

Beier, A.L. *Masterless Men: The Vagrancy Problem in England 1560-1640*. London and New York: Methuen Press, 1985.

Bello, Walden. *Structural Adjustment Programs – Success for Whom? In The Case against the Global Economy*. Edited by J. Mander and E. Goldsmith. San Francisco: Sierra Club Books, 1996.

Benahbib, Selya. "Cosmopolitanism and Democracy: Affinities and Tensions." *The Hedgehog Review* 11, no. 3 (2009).

Benahbib, Selya. *The Rights of Others: Aliens, Residents and Citizens*. Cambridge: Cambridge University Press, 2004.

- Bendall, Sarah A. *Maps, Land and Society: a History, with a Carto-bibliography of Cambridgeshire Estate Maps: 1600-1836*. Cambridge: Cambridge University Press, 1992.
- Beneyto, José María and Justo Corti Varela. *At the Origins of Modernity: Francisco de Vitoria and the Discovery of International Law*. Cham, Switzerland: Springer International Publishing 2017.
- Bennet, Colin J., Kevin D Haggerty, David Lyon and Valerie Steeves, eds. "The Rise of Security Culture." In *Transparent Lives, Surveillance in Canada: The New Transparency Project*. Alberta: Athabasca University Press, 2014.
- Bennet, James and Scott Mandelbrot. "Biblical Interpretation and the Improvement of Society: Samuel Hartlib (1600–1662) and his Circle." *Intellectual News* 3, no. 1 (1998): 17-24.
- Bennett, Jim A. "Geometry and Surveying in Early Seventeenth Century England." *Annals of Science* 48, no. 4 (1991): 345-354.
- Bennet, Jane. "Modernity and its Critics." In *The Oxford Handbook of Political Science*, edited by Robert E. Goodin, 211-224. Oxford: Oxford University Press, 2011.
- Ben-Shahar, Omri, and Kyle D. Logue. "Outsourcing Regulation: how Insurance Reduces Moral Hazard." *Michigan Law Review*, 111 (2012): 197-238.
- Bentham, Jeremy. "Observations on the Pauper Population Table, Hereunto Annexed: Tracts on Poor Laws and Pauper Management." In *The Works of Jeremy Bentham, Vol. 8*. Edinburgh: William Tait, 1838-1843. <https://oll.libertyfund.org/titles/bentham-works-of-jeremy-bentham-11-vols>.
- Bentham, Jeremy. "Of Security." In *Principles of the Civil Code: Part 1, Objects of the Civil Law*, edited by Sir John Bellamy. Edinburgh: Tait, 1843.
- Bentham, Jeremy (1789). "On The Principle of Utility." In *An Introduction to the Principles of Morals and Legislation*. Oxford, Clarendon Press, 1907. Library of Economics and Liberty Online, <http://www.econlib.org/library/Bentham/bnthPML1.html>.
- Bentham, Jeremy (1843). "Panoptican." In *The Works of Jeremy Bentham, Vol. 4*, edited by John Bowring. Edinburgh: W. Tait, 1843. <https://oll.libertyfund.org/titles/bentham-the-works-of-jeremy-bentham-vol-4>.
- Beresford, Maurice. *The Lost Villages of England*. Stroud, UK: Sutton Publishing, 1998.
- Berg, Maxine and Elizabeth Eger, eds. *Luxury in the Eighteenth Century: Debates, Desires and Delectable Goods*. London: Palgrave MacMillan, 2003.

- Berg, Maxine. "In Pursuit of Luxury: Global History and British Consumer Goods in the Eighteenth Century." *Past and Present*, 182 (2004): 85-142.
- Berland, Jody. *North of Empire: Essays on the Cultural Technologies of Space*. Durham, NC: Duke University Press, 2009.
- Berlin, Isaiah. "The Concept of Scientific History." In *Concepts and Categories: Philosophical Essays*, edited by Henry Hardy, 103-142. UK: Pimlico, 1999.
- Berman, Marshal. *All that is Solid Melts into Air*. London: Verso, 1983.
- Berman, Harold. *Law and Revolution, Volume Two: The Impact of the Protestant Reformations on the Western Legal Tradition*. Cambridge, MA: Harvard University Press, 2004.
- Bernstein, Peter. *Against the Gods: The Remarkable Story of Risk*. New York: John Wiley and Sons, 1998.
- Besley, Timothy, Stephen Coate and Timothy Guinnane. "Incentives, Information, and Welfare: England's New Poor Law and the Workhouse Test." In *History Matters: Essays in Honour of Paul David*, edited by Timothy W. Guinnane, Timothy, William A. Sundstrom, and Warren Whatley, 245-270. Stanford, CA: Stanford University Press, 2004.
- Best, Jacqueline. "The Limits of Financial Risk Management: or What we Didn't Learn from the Asian Crisis." *New Political Economy*, 15 (2010): 29-49.
- Beveridge, William. *Social Insurance and Allied Services, Presented to Parliament by Command of His Majesty November 1942*, HMSO Cmnd 6404. Socialist Health Association. <http://www.sochealth.co.uk/national-health-service/public-health-and-wellbeing/beveridge-report/>.
- Bhabra, Gurinder. *Rethinking Modernity: Postcolonialism and the Sociological Imagination*. New York: Springer, 2007.
- Biere, A.L. *Masterless Men: the Vagrancy Problem in England: 1560-1640*. London: Methuen, 1985.
- Binford, Henry C. "Never Trust the Census Taker, Even When He's Dead." *Urban History* 2 (1975): 22-28.
- Bishop, John Douglas. "Locke's Theory of Original Appropriation and the Right of Settlement in Iroquois Territory." *Canadian Journal of Philosophy* 27, no. 3 (Sept. 1997): 311-337.
- Black, Jeremy. *The Power of Knowledge: How Information and Technology Made the Modern World*. New Haven: Yale University Press, 2015.
- Blackstone, William (1766) *Commentaries on the Laws of England: Book II: of the Rights of Things*. Oxford: Oxford University Press, 2016.

- Blackstone, William (1766). *The Oxford Edition of Blackstone's Commentaries on the Laws of England: Book II: of the Rights of Things*. Edited by Simon Stern. Oxford: Oxford University Press, 2016.
- Blith, Walter. *The English Improver Improved, or The Survey of Husbandry Surveyed*. London: John Wright, 1652. Google Books.
- Blomley, Nicholas. "Disentangling Property, Performing Space." In *Performativity, Politics and the Production of Social Space*, edited by Rueben Rose-Redwood and Michael Glass, 147-175. London and New York; Routledge, 2015.
- Blomley, Nicholas. "Making Private Property: Enclosure, Common Right and the Work of Hedges." *Rural History* 18, no. 1 (2007): 1-21.
- Blomley, Nick. "Un-Real Estate Proprietary Space and Public Gardening." In *Neoliberal Environments: False Promises and Unnatural Consequences*, edited by Nik Heynen, James McCarthy, Scott Prudham, and Paul Robbins, 177-189. Routledge: London & New York, 2007.
- Blumenberg, Hans. *The Legitimacy of the Modern Age*. Boston: MIT Press, 1985.
- Böhm, S., M.C. Misoczky, and S. Moog. "Greening Capitalism? A Marxist Critique of Carbon Markets." *Organic Studies* 33, no.11 (2012): 1617–1638.
- Böhm, Steffen and Siddhartha Dabhi, eds. *Upsetting the Offset: The Political Economy of Carbon Markets*. London: Mayfly Books, 2009.
- Boltanski, Luc and Eve Chiapello, *The New Spirit of Capitalism*. Translated by Gregory Elliot. London: Verso, 2005.
- Bonnett, Alistair. "Art, Ideology, and Everyday Space: Subversive Tendencies from Dada to Postmodernism." *Environment and Planning D: Society and Space*, 10 (1992): 69-86.
- Borsheid, Peter and Neils Viggo Haueter. "Global Insurance: The Global Expansion of the Concept of Modern Insurance." *European Financial Review*, Dec. 2, 2012. <https://www.europeanfinancialreview.com/global-insurance-the-global-expansion-of-the-concept-of-modern-insurance/>.
- Bourke, Evan. "Female involvement, Membership, and Centrality: A Social Network Analysis of the Hartlib Circle." *Literature Compass* 14, no. 4 (2017).
- Bouwsma, William J. "Anxiety and the Formation of Early Modern Culture." In *A Usable Past: Essays in European Cultural History*, edited by William J. Bouwsma, 157-189. Berkeley: University of California Press. <https://muse.jhu.edu/>.
- Boychuk, Gerard W. and Keith G. Banting. "Rethinking the Divided Welfare State: the Role of Private and Public Benefits in the Development of Pensions and Health Insurance in

- Canada." Paper presented to the Canadian Political Science Association, Ottawa, Ontario, May 2009.
- Boychuk, Gerard W. and Keith G. Banting. "The Canada Paradox: The Public-Private Divide in Health Insurance and Pensions." In *Public and Private Social Policy*, edited by Daniel Béland and Brian Gran, 92-122. London: Palgrave Macmillan, 2008.
- Boyer, George. "Malthus was Right after All: Poor Relief and Birth Rates in Southeastern England." *Journal of Political Economy*, 97, no. 1 (1989): 93-114.
- Brambor, T. A., Goenaga, J. Lindvall, and J. Teorell. "The Lay of the Land: Information Capacity and the Modern State." *STANCE Working Paper Series, 2*. Lund, Sweden: Lund University Press, 2016.
- Brantlinger, Patrick M. *States of Emergency: Essays on Culture and Politics*. Bloomington: Indiana University Press, 2013.
- Braudel, Fernand. "History and the Social Sciences: The Longue Durée." Translated by Immanuel Wallerstein. *Review (Fernand Braudel Center)*, (2009): 171-203.
- Brebner, J.B. "Laissez Faire and State Intervention in Nineteenth Century Britain." *Journal of Economic History*, 8 (1948).
- Brenner, Reuven and Gabrielle Brenner. *Gambling and Speculation: a Theory, a History and a Future of some Human Decisions*. Cambridge: Cambridge University Press, 1990.
- Brenner, Robert. "The Origins of Capitalist Development: a Critique of Neo-Smithian Marxism." *New Left Review*, 104 (1977): 36-37.
- Briggs, Asa. "The Welfare State in Historical Perspective." *European Journal of Sociology* 2, no.2 (1961): 221-258.
- Broadie, Alexander. *The Scottish Enlightenment: An Anthology*. Edinburgh: Canongate, 2010.
- Brooks, C.W. *Pettyfoggers and Vipers of the Commonwealth*. Cambridge: Cambridge University Press, 1986.
- Brooks, Clem and Jeff Manza. *Why Welfare States Persist. The Importance of Public Opinion in Democracies*. Chicago and London: The University of Chicago Press, 2007.
- Brotton, Jeremy. *A History of the World in Twelve Maps*. Toronto: Allen Lane, 2012.
- Brown, B. "Thing Theory." *Critical Inquiry* 28, no. 1 (2001): 1-22.
- Brown, J.C. *Victims or Villains? Social Security Benefits in Unemployment*. York, UK: Joseph Rowntree Memorial Trust, 1990.
- Brubaker, Rogers. *The Limits of Rationality: an Essay on the Social and Moral Thoughts of Max Weber*. London: George Allen & Unwin, 1984.

- Brückner Martin and Kristen Poole. "The Plot Thickens: Surveying Manuals, Drama, and the Materiality of Narrative Form in Early Modern England." *English Literary History* 69, no. 3 (2002): 617-648.
- Brundage, Anthony. *The English Poor Laws, 1700–1930*. Palgrave, New York, 2002.
- Brundage, Anthony. *The Making of the New Poor Law: The Politics of Inquiry, Enactment, and Implementation, 1832-1839*. New Brunswick: Rutgers University Press, 1978.
- Brundage, Anthony and David Eastwood. "The Making of the New Poor Law Redivivus." *Past and Present*, 127 (1990): 183-194.
- Buhlmann, Hans. "The Actuary: the Role and Limitations of the Profession since the mid-19th Century." *ASTIN Bulletin* 27, no.2 (1997): 165-171
- Burguière, André. *The Annales School: An Intellectual History*. Ithaca, Cornell University Press, 1900.
- Burnett, Charles. *Arabic into Latin in the Middle Ages: The Translators and their Intellectual and Social Context*. Farnham, UK: Ashgate Variorum, 2009.
- Bury, J.B. *The Idea of Progress: an Inquiry into its Origin and Growth*. New York: Dover Publications, 2014.
- Camus, Albert. *The Myth of Sisyphus*. London: Penguin, 2000.
- Capp, Bernard Stuart. *England's Culture Wars: Puritan Reformation and its Enemies in the Interregnum, 1649-1660*. Oxford: Oxford University Press, 2012.
- Cardwell, Kenneth. "Francis Bacon, Inquisitor." In *Francis Bacon's Legacy of Texts*, edited by William Sessions. New York: AMS Press, 1990.
- Carens, Joseph H. "Aliens and Citizens: the Case for Open Borders." *The Review of Politics* 49, no. 2 (Spring, 1987): 251-273.
- Carens, Joseph H. "Open Borders and the Claims of Community." *APSA Annual Meeting Paper*, 2010. <https://ssrn.com/abstract=1642718>.
- Carey, Daniel. "Compiling Nature's History: Travellers and Travel Narratives in the Early Royal Society." *Annals of Science* 54, no. 3 (1997): 269-292.
- Carruthers, Bruce G. *City of Capital: Politics and Markets in the English Financial Revolution*. Princeton, NJ: Princeton University Press, 1999.
- Carstairs, Catherine and Rachel Elder. "Expertise, Health and Popular Opinion: Debating Water Fluoridation, 1945-80." *The Canadian Historical Review* 89, no. 3 (Sept, 2008): 345-371. <http://doi.org/10.3138/chr.89.3.345>.

- Castel, Robert. "Emergence and Transformations of Social Property." *Constellations* 9, no. 3 (2002): 318-334.
- Castel, Robert. "From Dangerousness to Risk." In *The Foucault Effect: Studies in Governmentality*, edited by Graham Burchell, Colin Gordon and Peter Miller. Chicago: University of Chicago Press, 1991.
- Castells, Manuel. "An Introduction to the Information Age." In *The Information Society Reader*, edited by Frank Webster and Raimo Blom, 138-149. London and New York: Routledge, 2004.
- Castiglione, Dario. "That Noble Disquiet': Meanings of Liberty in the Discourse of the North." In *Economy, Polity, and Society: British Intellectual History 1750-1950*, edited by Stefan Collini, Richard Whatmore, and Brian Young (Cambridge: Cambridge University Press, 2000).
- Castles, Francis G. *The Future of the Welfare State: Crisis Myths and Crisis Realities*. Oxford: Oxford University Press, 2004.
- Castoriadis, Cornelius. *The Imaginary Institution of Society*. Cambridge: Polity Press, 1987.
- Chadwick, Edwin. *Report on the Sanitary Condition of the Labouring Population of Great Britain, 1842*. Edited by M. W. Flinn. Edinburgh, Edinburgh University Press, 1965.
- Chakrabarti, Dipesh. *Provincializing Europe: Postcolonial Thought and Historical Difference*. New Jersey: Princeton University Press, 2009.
- Chamber's Encyclopedia. s.v. "Beating the Bounds." In *Chamber's Encyclopedia: A Dictionary of Universal Knowledge, Vol. I*. London: W. and R. Chambers Ltd., 1874.
<http://books.google.ca/books?id=ma3wA59hNXMC>.
- Chaplin, Joyce. *An Anxious Pursuit*. Chapel Hill: University of North Carolina Press, 1993.
- Chapman, Colin R. *Pre-1841 Censuses & Population Listings in the British Isles*. Baltimore MD.: Genealogical Publishing Company, 1999.
- Chatterjee, Deen K. "Moral Distance: Introduction." *The Monist* 86, No. 3 (2003): 327-32.
- Chatterjee, Partha *Our Modernity*. Issue 1 of SEPHIS-Codesria Lecture, Council for the Development of Economic and Social Research in Africa. Rotterdam: Sepsis, 1997.
- Chaudhuri, Amit. *Clearing a Space: Reflections on India, Literature and Culture*, Vol. 8. New York: Peter Lang, 2008.
- Chorev, Nitsan and Sarah Babb. "The Crisis of Neoliberalism and the Future of International Institutions: A Comparison of the IMF and the WTO." *Theory and Society*, 38 (2009):459–484.

- Clark, Geoffrey. *Betting on Lives: the Culture of Life Insurance in England, 1695-1775*. Manchester, Manchester University Press, 1999.
- Clark, Gregory. "Land Rental Values and the Agrarian Economy: England and Wales, 1500–1914" *European Review of Economic History* 6, no. 3 (2002): 281-308.
- Clark, Geoffrey. "The Slave's Appeal: Insurance and the Rise of Commercial Property." In *The Appeal of Insurance*, edited by Geoffrey Clark, Gregory Anderson et al., 52-74. Toronto: University of Toronto, 2010.
- Clark, Stuart. *Vanities of the Eye: Vision in Early Modern European Culture*. Oxford, Oxford University Press, 2007.
- Classen, Albrecht. "Time, and Space, and Travel in the Pre-Modern World: Theoretical and Historical Reflections. An Introduction." In *Travel, Time, and Space in the Middle Ages and Early Modern Time: Explorations of World Perceptions and Processes of Identity Formation*, edited by Albrecht Classen, 1-75. Boston: Walter de Gruyter Inc., 2018.
- Cohen, Jonathan L. "Intuition, Induction, and the Middle Way." *The Monist* 65, no.3, (1982): 287-301.
- Cohn, Bernard S. "The Census, Social Structure and Objectification in South Asia." In *An Anthropologist among the Historians and Other Essays*, edited by Bernard S. Cohn, 224-54. New York: Oxford UP, 1984.
- Cohn, Samuel K. Jr. *Lust for Liberty: the Politics of Social Revolt in Medieval Europe, 1200-1425*. Cambridge: Harvard University Press, 2006
- Colley Linda, *Britons*. New Haven: Yale University Press, 1992.
- The Concise Oxford Dictionary*, 8th ed., s.v. "Risk." Oxford: Clarendon Press, 1990.
- Conway, Stephen. "Bentham and the Nineteenth-century Revolution in Government." In *Jeremy Bentham*, edited by Frederick Rosen, 597-616. London: Routledge, 2017.
- Coquillette, Daniel R. "Past the Pillars of Hercules: Francis Bacon and the Science of Rulemaking," *University of Michigan. Journal of Law Reform* 46 (2013): 549.
- Cordero, Rodrigo. "The Temporalization of Critique and the Open Riddle of History: On Reinhart Koselleck's Contributions to Critical Theory." *Thesis Eleven* 137, no. 1 (2016): 55-71.
- Cornish, W. R. and G de N. Clark. *Law and Society in England 1750-1950*. London: Sweet & Maxwell, 1989.
- Cosgrove, Denis and Stephen Daniels, eds. *The Iconography of Landscape*. Cambridge: Cambridge UP, 1988.
- Coudert, Allison P. "Space, Time and Identity: Giovanni Battista Piranesi and the Epidemic of Ennui in the Pre-Modern West." In *Travel, Time, and Space in the Middle Ages and Early*

Modern Time: Explorations of World Perceptions and Processes of Identity Formation, edited by Albrecht Classen, 647-696. Boston: Walter de Gruyter Inc., 2018.

- Covello, Vincent T. and Jeryl Mumpower. "Risk Analysis and Risk Management: A Historical Perspective." In *Risk Evaluation and Management*, edited by Vincent T. Covello and Jeryl Mumpower, 519-521. Plenum Press, New York, 1986.
- Coward, Barry. *Social Change and Continuity: England, 1550-1750*. London: Longman, 1997.
- Crafts, Nicholas and Peter Fearon. "Lessons from the 1930's Great Depression." *Oxford Review of Economic Policy* 26, no. 3 (2010): 285-317.
- Cronin, Anne. "The Substance of Consumption: Alchemy, Addiction and the Commodity." *International Journal of Cultural Studies* 5, no.3 (2002): 316-335.
- Crook, Tom and Glen O'Hara, eds. *Statistics and the Public Sphere: Numbers and the People in Modern Britain, c. 1800-2000* Vol. 6. London: Routledge, 2012.
- Crosby, Alfred W. *The Measure of Reality: Quantification in Western Europe: 1250-1600*. Cambridge: Cambridge University Press, 1997.
- Crotty, James. "Structural Causes of the Global Financial Crisis: a Critical Assessment of the 'New Financial Architecture,'" *Cambridge Journal of Economics* 33, no. 4 (2009): 563-580. <https://doi.org/10.1093/cje/bep023>.
- Crump, Justine "The Perils of Play: Eighteenth-Century Ideas about Gambling." Phd. Diss: University of Cambridge, 2004.
- Cullen, Michael J. "The Statistical Movement in Early Victorian England." Sussex: The Harvester Press, 1975.
- Curtis, Bruce. *The Politics of Population: State Formation, Statistics, and the Census of Canada, 1840-1875*. Toronto: University of Toronto Press, 2002.
- Cushing, Kathleen G. *Papacy and Law in the Gregorian Revolution: The Canonistic work of Anselm of Lucca*. Oxford: Clarendon Press, 2000.
- Dalche, Patrick Gaultier. "The Reception of Ptolemy's Geography (End of the Fourteenth to Beginning of the Sixteenth Century)." In *The History of Renaissance Cartography: Interpretive Essays*, edited by David Woodward, 285-364. Chicago: Chicago University Press, 2007.
- Dale, Richard. *The First Crash: Lessons from the South Sea Bubble*. Princeton: Princeton University Press, 2004.
- Daniels, Stephen. "The Political Iconography of Woodland." In *The Iconography of Landscape*, edited by Denis Cosgrove and Stephen Daniels, 43-82. Cambridge: Cambridge University Press, 1988.

- Danielsson, Jon. "The Emperor has no Clothes: Limits to Risk Modelling." *Journal of Banking & Finance* 26, no. 7 (2002): 1273-1296.
- Danson, Edwin. *Weighing the World: the Quest to Measure the Earth*. Oxford: Oxford University Press, 2006.
- Dasgupta, Biplab. "SAP: Issues and Conditionalities: A Global Review." *Economic and Political Weekly* 32, no. 20-21 (May 17-30, 1997): 1091-1104.
- Daskalaki, M., A. Stara, and M. Imas. "The Parkour Organisation: Inhabitation of Corporate Spaces." *Culture and Organization* 14 no. 1, (2008): 49–64.
- Daston, Lorraine. *Classical Probability in the Enlightenment*. Princeton, NJ: Princeton University Press, 1988.
- Daston, Lorraine. "The Domestication of Risk: Mathematical Probability and Insurance." In *The Probabilistic Revolution*, edited by Lorenz Kruger, Lorraine Daston and Michael Heidelberger, 237-260. Cambridge, MA: The MIT Press, 1987.
- Daston, Lorraine. "How Probabilities Came to Be Objective and Subjective." *Historia Mathematica*, 21 (1994): 330-344.
- Daston, Lorraine. "Objectivity and the Escape from Perspective." *Social Studies of Science* 22, no. 4 (1992): 597-618.
- Daunton, Martin. *The Organisation of Knowledge in Victorian Britain*. Oxford and New York: Oxford University Press, 2005.
- Davies, Margaret *Property: Meanings, Histories, Theories*. London: Routledge, 2007.
- Davies, Sir Howard. "This is What You Need to Know about Global Debt." *Global Agenda, World Economic Forum*, weforum.org, June 20, 2018.
<https://www.weforum.org/agenda/2018/06/the-anatomy-of-global-debt>.
- Deakin, Nicholas, Catherine Jones Finer, and Bob Matthews, eds. *Welfare and the State: Critical Concepts in Political Science*. Abingdon, UK: Taylor and Francis, 2004.
- Dear, Peter. "From Truth to Disinterestedness in the Seventeenth Century." *Social Studies of Science* 22, no. 4 (1992): 619-631.
- Debord, Guy. *Society of the Spectacle*." In *Guy Debord and the Situationist International: Texts and Documents*, edited by Tom McDonough. Cambridge, MA: MIT Press, 2002.
- Dee, John. "The Mathematicall Praeface to the Elements of Geometrie of Euclid of Megara" [1570]. Introduction by Allen G. Debus. New York: Science History Publications, 1975.

- Defert, Daniel. "‘Popular Life’ and Insurance Technology." In *The Foucault Effect: Studies in Governmentality*, edited by Graham Burchell, Colin Gordon and Peter Miller, 211-234. Chicago: University of Chicago Press, 1991.
- Defoe, Daniel. *Anatomy of Exchange Alley, Or a System of Stock-Jobbing*. London: E. Smith, 1719. <https://books.google.com>.
- Defoe, Daniel (1719). *The Life and Strange Surprising Adventures of Robinson Crusoe*. Oxford: Oxford University Press, 1998.
- Delanty, Gerard. "The Foundations of Social Theory." In *The New Blackwell Companion to Social Theory*, edited by Bryan S. Turner. Oxford: Wiley-Blackwell, 2009.
- Delanty, Gerard. *Modernity and Postmodernity: Knowledge, Power and the Self*. London: Sage, 2000.
- Delanty, Gerard. *Social Theory in a Changing World: Conceptions of Modernity*. Hoboken, NJ: John Wiley and Sons, 1999.
- Deleuze, Gilles and Félix Guattari. *Anti-Oedipus*. Translated by Robert Hurley, Mark Seem, and Helen R. Lane. New York: Viking Press, 1977.
- Demasio, Antonio R. *Descartes' Error: Emotion, Reason and the Human Brain*. New York: Harcourt Brace & Company, 1999.
- Deng, Kent G. "Unveiling China's True Population Statistics for the Pre-modern Era with Official Census Data." *Population Review* 43, no. 2 (2004): 32-69.
- Derrida, Jacques. *Of Grammatology*. Translated by Gayatri Chakravorty Spivak. Baltimore, MD: Johns Hopkins University Press, 1976.
- Desroches, Dennis. *Francis Bacon and the Limits of Scientific Knowledge*. London: Continuum, 2006.
- Desrosières, Alain. *The Politics of Large Numbers: A History of Statistical Reasoning*. Cambridge, MA: Harvard University Press, 2002.
- Dilley, Robert S. "The Customary Acre: an Indeterminate Measure." *Agricultural History Review* 23, no. 2 (1975): 173-176.
- Dilthey, Wilhelm. *Introduction to the Human Sciences*. Vol. 1. Princeton University Press, 1991.
- DiMeo, Michelle Marie. "Katherine Jones, Lady Ranelagh (1615-91): Science and Medicine in a Seventeenth-century Englishwoman's Writing." PhD diss., University of Warwick, 2009.
- DiMeo, Michelle. "'Such a Sister Became Such a Brother': Lady Ranelagh's influence on Robert Boyle." *Intellectual History Review* 25, no. 1 (2015): 21-36.

- Dirbacj, Nadja. *Bodily Matters: the Anti-Vaccination Movement in England: 1853-1907*. Durham and London: Duke University Press, 2005.
- Dirks, Nicholas. *Castes of Mind, Colonialism and the Making of Modern India*. Princeton, NJ; Princeton University Press, 2001.
- Dixon-Hunt, John and Peter Willis, eds. *The Genius of the Place: the English Landscape Garden, 1620-1820*. London: MIT Press, 1988.
- Doherty, Ben. "Climate change will fuel terrorism recruitment, report for German foreign office says." *The Guardian*. April, 19, 2017.
<https://www.theguardian.com/environment/2017/apr/20/climate-change-will-fuel-terrorism-recruitment-adelphi-report-says>.
- Donzelot, Jacques. "The Mobilization of Society." In *The Foucault Effect: Studies in Governmentality*, edited by Graham Burchell, Colin Gordon and Peter Miller, 161-180. Chicago: University of Chicago Press, 1991.
- Douglas, Mary and Aaron Wildavsky. *Risk and Culture: An Essay on the Selection of Technological and Environmental Dangers*. Oakland, CA: University of California Press, 1983.
- Douglass, Robin. "Morality and Sociability in Commercial Society: Smith, Roussey-and Mandeville." *The Review of Politics* 79, no. 4 (Fall, 2017): 597-620.
- Douzinas, Costas. "Foreword." In *The Eye of the Law: Two Essays on Legal History*, edited by Michael Stolleis, translated by Thomas Dunlap. Abingdon: Birkbeck Law Press, 2009.
- Doyle, Aaron. "Introduction: Trust, Citizenship and Exclusion in the Risk Society." In *Risk and Trust: Including or Excluding Citizens*, edited by the Law Commission of Canada, 7-22. Halifax, NS: Fernwood Publishing, 2007.
- Doyle, Aaron. "Trust, Citizenship and Exclusion in the Risk Society." In *Risk and Trust: Including or Excluding Citizens?* Edited by the Law Commission of Canada. Blackpoint, Nova Scotia: Fernwood Publications, 2007.
- Driver, F. *Power and Pauperism: the Workhouse System, 1834-1884*. Cambridge University Press, Cambridge, 1993.
- Dryzek, John and Robert E. Goodin. "Risk Sharing and Social Justice: The Motivational Foundations of the Post-War Welfare State." *British Journal of Political Science* 16, no. 1 (Jan., 1986): 1-34.
- Dube, Saurabh. "Introduction: Colonialism, Modernity, Colonial Modernities." *Nepantla: Views from South* 3, no. 2 (2002): 197-219.

- Dunkley, Peter. "Whigs and Paupers: The Reform of the English Poor Laws, 1830-1834." *The Journal of British Studies* 20, no. 2 (1981), 135.
- Dupré, Louis. *Passage to Modernity: An Essay in the Hermeneutics of Nature and Culture*. New Haven, CT; Yale University Press, 1995.
- Durand, Cedric. "The Ignored Lessons of the Financial Crisis." *Verso*. March, 1, 2017. <https://www.versobooks.com/blogs/3114-the-ignored-lessons-of-the-financial-crisis>.
- Dussel, Enrique D., Javier Krauel, and Virginia C. Tuma, "Europe, Modernity, and Eurocentrism." *Nepantla: Views from South* 1, no. 3 (2000): 465-478.
- Dutt, Amitava Krishna. "Uncertainty, Power, Institutions, and Crisis: Implications for Economic Analysis and the Future of Capitalism." *Review of Keynesian Economics* 3, no. 1, (Spring 2015): 9–28.
- Dymski, Gary A. "Financial Risk and Governance in the Neoliberal Era." In *Managing Financial Risks: From Global to Local*, edited by Gordon L. Clark, Adam D. Dixon, and Ashby HB Monk, 48-68. Oxford: Oxford University Press, 2009.
- Eastin, Josh, Reiner Grundmann, and Aseem Prakash. "The Two Limits Debates: "Limits to Growth" and Climate Change." *Futures* 43, no. 1 (2011): 16-26.
- Eastwood, David. "'Amplifying the Province of the Legislature': the Flow of Information and the English State in the Early Nineteenth Century." *Historical Research*, 62, no. 149 (October 1989): 276–294.
- Eden, Peter. "Three Elizabethan Estate Surveyors: Peter Kempe, Thomas Clerke, and Thomas Langdon." In *English Map-Making, 1500–1650: Historical Essays*, edited by Sarah Tyacke, 68-84. London: British Library, 1983.
- Edgell, Rev. Wyatt. "Moral Statistics of the Parishes of St. James, St. George, and St. Anne Soho, in the City of Westminster. Supplementary to the Third Report of the Education Committee of the Statistical Society of London." *Journal of the Statistical Society of London* 1, no. 8 (Dec., 1838): 478-492, <http://www.jstor.org/stable/2338094>.
- Edmiston, Jake. "Canada's Inexplicable Anxiety over Violent Crime." *National Post*. Aug. 4, 2012. <http://nationalpost.com/news/canada/canadas-inexplicable-anxiety-over-violent-crime>.
- Edson, Evelyn. *Mapping Time and Space: How Medieval Mapmakers Viewed their World*. London: British Library, 1997.
- Eichengreen, Barry. "Financial Crisis: Revisiting the Banking Rules that Died by a Thousand Small Cuts." *Fortune*, January 16, 2015.
- Eichengreen, Barry. "The British Economy between the Wars." In *The Cambridge Economic History of Modern Britain*, edited by Roderick Floud and Paul Johnson, 314-343. Cambridge: Cambridge University Press, 2004.

- Eid, Mahmoud. "Reflexive Modernity and Risk Society." *International Journal of the Humanities*, 1 (2003): 813-828.
- Eisenstadt, Shmuel Noah. "Multiple Modernities." *Daedalus* 129, no. 1 (2000): 1-29.
- El-Erian, Mohamed A. "These are the Lost Lessons of the Great Recession." *World Economic Forum*. Aug. 21, 2017. <https://www.weforum.org/agenda/2017/08/the-lost-lesson-of-the-financial-crisis>.
- Elias, Norbert. *The Civilizing Process*. Oxford: Blackwell, 1994.
- Elliot, Paul A. *Enlightenment, Modernity and Science: Geographies of Scientific Culture and Improvement in Georgian England*. London; I.B. Tauris, 2010.
- Ellmers, Bob. "Things to Watch in 2019: Debt and Emerging Debt Crisis" in CADTM, Committee for the Abolition of Illegitimate Debt. *cadtm.org*, January 18, 2019. www.cadtm.org/Things-to-watch-in-2019-Debt-and-emerging-debt-crises.
- Ellwood, Wayne. *Debt and Structural Adjustment*. In *The No-Nonsense Guide to Globalization*. Edited by Wayne Ellwood. Toronto: Between the Lines, 2002.
- Elsässer, Lea, Inga Rademacher and Armin Schäfer. "Cracks in the Foundation: Retrenchment in Advanced Welfare State." *Economic Sociology: The European Electronic Newsletter* 16, no. 3 (July 2015): 4-16.
- Emigh, Rebecca, Jean Dylan Riley, and Patricia Ahmed. *Antecedents of Censuses from Medieval to Nation States: How Societies and States Count*. New York: Springer, 2016.
- Encyclopaedia Britannica Online*, s.v. "Keno," Accessed July 2017.
- Engel-Ledeboer, M.S. J. and R. Engel. "Introduction." In *Carolus Linnaeus's Systema Naturae*. Nieuwkoop: B. De Graaf, 1965.
- Englander, David. *Poverty and Poor Law Reform in Britain: From Chadwick to Booth, 1834-1914*. New York: Addison Wesley Longman, 1998.
- Ericson, Richard V. Aaron Doyle, and Dean Barry, eds. *Insurance as Governance*. Toronto: University of Toronto Press, 2003.
- Esping-Andersen, Gosta. *The Three Worlds of Welfare Capitalism*. Princeton University Press Princeton, New Jersey, 1990.
- Europol. "Carbon Credit Fraud Causes More than 5 billion Euros Damage for European Taxpayer." *europol.org*, December 9, 2009. <https://www.europol.europa.eu/content/press/carbon-credit-fraud-causes-more-5-billion-euros-damage-european-taxpayer-1265%20/>.

- Ewald, François. "Insurance and Risk." In *The Foucault Effect: Studies in Governmentality*, edited by Graham Burchell, Colin Gordon and Peter Miller. Chicago: University of Chicago Press, 1991.
www.brittanica.com/topic/keno.
- "Facts and Statistics: Industry Overview." *Insurance information Institute*.
<https://www.iii.org/fact-statistic/facts-statistics-industry-overview>.
- Fabian, Johannes. *Time and The Other: How Anthropology Makes its Object*. New York: Columbia University Press, 1983.
- Farr, Arnold. *Stanford Encyclopedia of Philosophy*. s.v. "Herbert Marcuse." Stanford, CA: Stanford Encyclopedia of Philosophy, 2013.
<https://plato.stanford.edu/entries/marcuse/#PheMar>.
- Fehér, Ferenc, ed. *The French Revolution and the Birth of Modernity*. Oakland CA: University of California Press, 1990.
- Ferguson, Harvie. *Modernity and Subjectivity: Body, Soul, Spirit*. Charlottesville & London: University of Virginia Press, 2000.
- Fernandes, Catarina, et al. "Determinants of European Banks' Bailouts Following the 2007–2008 Financial Crisis." *Journal of International Economic Law* 19, no. 3 (September, 2016): 707–742. <https://doi.org/10.1093/jiel/jgw060>.
- Finkelstein, Andrea Lynne. *Harmony and the Balance: an Intellectual History of Seventeenth-Century English Economic Thought*. Ann Arbor, MI: University of Michigan Press, 2009.
- Finlayson, G. B. A. M. *England in the Eighteen Thirties: Decade of Reform*. London: Edward Arnold, 1969.
- Firnhaber-Baker, Justine and Dirk Schoenaers, eds. *The Routledge History Handbook of Medieval Revolt*. London and New York: Routledge, 2017.
- Great Britain. Poor Law Commissioners. *The First Report of the Commissioners for Inquiring into the Administration and Operation of the Poor Laws*. London: Eyre and Spottiswoode, 1894. <https://catalog.hathitrust.org/Record/011723797>.
- Fitzmaurice, Andrew. *Humanism and America: an Intellectual History of English Colonisation*. Cambridge: Cambridge University Press, 2003.
- Fleissner, Jennifer L. "Obsessional Modernity: 'The Institutionalization of Doubt.'" *Critical Inquiry* 34, no. 1 (Autumn, 2007):106-134.
- Fletcher, Anthony and Diarmaid MacCulloch. *Tudor Rebellions: Revised 5th Edition*. Abingdon, UK: Routledge, 2014.
- Fleury, Dominique. "Precarious Employment in Canada: An Overview of the Situation." Hillnotes: Research and Analysis from Canada's Library of Parliament, Aboriginal

- Affairs and Social Development. January 27, 2016. <https://hillnotes.wordpress.com/2016/01/27/precarious-employment-in-canada-an-overview-of-the-situation>.
- Foster, John Bellamy. "The Financialization of Capitalism." *Monthly Review*, Apr 01, 2007. <https://monthlyreview.org/2007/04/01/the-financialization-of-capitalism/>.
- Foucault, Michel *The Archeology of Knowledge*, trans. A.M. Sheridan Smith, (London and New York: Routledge, 2002).
- Foucault, Michel. *The Birth of The Clinic: An Archeology of the Human Sciences*. New York: Vintage, 1973.
- Foucault, Michel. *Discipline and Punish: the Birth of the Prison*, translated by Alan Sheridan. New York: Random House, 1977.
- Foucault, Michel, "Governmentality." In *The Foucault Effect: Studies in Governmentality*, edited by Graham Burchell, Colin Gordon and Peter Miller. Chicago: University of Chicago Press, 1991.
- Foucault, Michel. *The History of Sexuality, Volume I: An Introduction*, translated by Robert Hurley. New York: Vintage, 1990.
- Foucault, Michel (1971). *Madness and Civilization: a History of Insanity in the Age of Reason*. London: Routledge, 2003.
- Foucault, Michel. "Nietzsche, Genealogy, History," *Language, Counter-Memory, Practice: Selected Essays and Interviews*, ed. by D. F. Bouchard. Ithaca: Cornell University Press, 1977.
- Foucault, Michel. *The Order of Things: An Archeology of the Human Sciences*. Vintage Books: New York, 1973.
- Foucault, Michel. *The Foucault Reader*, ed. Paul Rabinow. Pantheon Book: New York, 1984.
- Fox, Adam. "Sir William Petty, Ireland, and the Making of a Political Economist, 1653-1687." *The Economic History Review* 62, no. 2 (2009): 388-404.
- Francoise Ewald. *L'Etat Providence*. Paris: Grasset, 1986.
- Francoise, Ewald. "Insurance and Risk." In *The Foucault Effect: Studies in Governmentality*, edited by Graham Burchell, Colin Gordon and Peter Miller, 197-210. Chicago: University of Chicago Press, 1991.
- Frank Palmeri. *State of Nature, Stages of Society: Enlightenment Conjectural History and Modern Social Discourse*. New York: Columbia University Press, 2016.
- French, Peter J. *John Dee: The World of an Elizabethan Magus*. New York: Routledge, 1972.

- Fudge, Thomas. *Medieval Religion and its Anxieties: History and Mystery in the Other Middle Ages*. New York: Palgrave Macmillan, 2017.
- Fuggle, Sophie. "Discourses of Subversion: The Ethics and Aesthetics of Capoeira and Parkour." *Dance Research* 26, no. 2 (2008): 204-222.
- Furedi, F. "Precautionary Culture and the Rise of Possibilistic Risk Assessment." *Erasmus Law Review* 2, no. 2 (2009): 197-220.
- Furedi, F. *The Culture of Fear Revisited*. London: Continuum Press 2007.
- Bouchard, Donald F., ed. *Selected Essays and Interviews by Michel Foucault*. Ithaca: Cornell University Press, 1977.
- Gane, Nicholas. "Max Weber and Postmodern Theory: Rationality Versus Re-enchantment," *Contemporary Sociology* 32 no.5 (September, 2003): 646.
- Gaonkar, Dilip and Michael Hanchard, eds. "Alternative Modernities." Durham, NC: Duke University Press, 2001.
- Garland, David. *The Culture of Control: Crime and Social Order in Contemporary Society*. Chicago: University of Chicago Press, 2001.
- Garland, David. "The Rise of Risk." In *Risk and Morality*, edited by Richard V. Ericson and Aaron Doyle. University of Toronto Press: Toronto, 2003.
- Garland, David. *The Welfare State: A Very Short Introduction*. Oxford: Oxford University Press, 2016.
- Gaukroger, Stephen. *Francis Bacon and the Transformation of Early Modern Philosophy*. Cambridge: Cambridge University Press, 2001.
- Gay, Edwin F. "The Midland Revolt and the Inquisitions of Depopulation of 1607." *Transactions in the Royal Historical Society* 18 (1904): 195–244. <http://dx.doi.org/10.2307/3678075>.
- Geneva Association. "The Insurance Industry and Climate Change-Contribution to the Global Debate." *The Geneva Reports* 2, no. 1 (2014): 1-152.
- Gerding, Eric F. "Code, Crash, and Open Source: The Outsourcing of Financial Regulation to Risk Models and the Global Financial Crisis." *Washington Law Review*, 84 (2009): 127-198.
- Gerhardt, Maria and Rudi Vander Venet. "Bank Bailouts in Europe and Bank Performance." *Finance Research Letters* 22 (2017): 74-80.
- Gerig, Daniel S. "A Quarter Century of Social Security Abroad." *Social Security Bulletin* 23, no. 8 (1960) 59-66.

- Getzler, Joshua. "Theories of Property and Economic Development." *Journal of Interdisciplinary History* 26, no. 4 (1996), 639-669.
- Giddens, Anthony. *The Consequences of Modernity*. Cambridge: Polity Press, 1990.
- Giddens, Anthony and Christopher Pierson. *Conversations with Anthony Giddens. Making Sense of Modernity*. Cambridge: Polity Press, 1998.
- Giddens, Anthony. *Modernity and Self-Identity, Self and Society in Late-Modern Age*. Cambridge: Polity Press, 1991.
- Giddens, Anthony. "Time-Space Distanciation and the Generation of Power." In *A Contemporary Critique of Historical Materialism: Power, Property and the State*, edited by Anthony Giddens, 90-108. London: Macmillan, 1981.
- Gigerenzer, Gerd. *The Empire of Chance: How Probability Changed Science and Everyday life*. Vol. 12. Cambridge: Cambridge University Press, 1990.
- Gillespie, Michael A. *The Theological Origins of Modernity*. Chicago: University of Chicago Press, 1999.
- Giovanni, Andrea Cornia and Sheldon Danziger, eds. *Child Poverty and Deprivation in the Industrial Countries, 1945-1995*. Oxford: Clarendon Press, 1997.
- Glassner, Barry. *The Culture of Fear: Why Americans are Afraid of the Wrong Things*. New York: Basic Books, 1999.
- Glenn, H. Patrick. *Legal Traditions of the World: Sustainable Diversity in Law*. Oxford: Oxford University Press, 2010.
- Glenn, John G. *Foucault and Post-Financial Crises: Governmentality, Discipline and Resistance*. Cham: Switzerland: Palgrave MacMillan, 2019.
- Glimp, David and Michelle R. Warren, eds. *Arts of Calculation: Quantifying Thought in Early Modern Europe*. New York: Palgrave, 2004.
- Godfray, H.C.J., B.R.Clark et al. "The Web and the Structure of Taxonomy." *Systematic Biology* 56, no. 6 (2007): 943-955.
- Gofman, Michael. "Efficiency and Stability of a Financial Architecture with Too-Interconnected-to-Fail Institutions." *Journal of Financial Economics* 124, no. 1 (2017): 113-146.
- Goldie, Mark. "The English System of Liberty." In *The Cambridge History of Eighteenth-century Political Thought Vol. 1*, edited by Goldie, Mark and Robert Wokler, 30-79. Cambridge: Cambridge University Press, 2006.
- Goldman, Lawrence. "The Origins of British Social Science: Political Economy, Natural Science and Statistics, 1830- 1835." *Historical Journal*, 26, no.3 (1983): 586-616.

- Gracia, Jorge J. E. and Timothy N. Noone. *A Companion to Philosophy in the Middle Ages*. Malden, MA: Blackwell Publishing, 2002.
- Graf von der Schulenburg, Matthias J. and Christian Thomann. "Gottfried Wilhelm Leibniz's Work on Insurance." In *The Appeal of Insurance*, edited by Geoffrey Clark, Gregory Anderson et al. 43-51. University of Toronto: Toronto, 2010.
- Graham Burchell, Colin Gordon and Peter Miller. *The Foucault Effect: Studies in Governmentality*. Chicago: University of Chicago Press, 1991.
- Graham, Karen. "Lives Are at Stake Unless We Break Our Addiction to Fossil Fuels." *digitaljournal.com*, December 16, 2018.
<http://www.digitaljournal.com/news/environment/lives-are-at-stake-unless-we-break-our-addiction-to-fossil-fuels/article/539092>.
- Graham, Mark A. *How Islam Created the Modern World*. Beltsville, Maryland: Amana Publications, 2006.
- Granfield, Robert. "Addiction and Modernity: A Comment on a Global Theory of Addiction." *Nordic Council for Alcohol and Drug Research* 44 (Jan, 2004): 29-34.
- Grant, Edward. *God and Reason in the Middle Ages*. Cambridge: Cambridge University Press, 2001.
- Grant, Edward. *Much Ado about Nothing: Theories of Space and Vacuum from the Middle Ages to the Scientific Revolution*. Cambridge: Cambridge University Press, 1981.
- Graus, František. "From Resistance to Revolt: The Late Medieval Peasant Wars in the Context of Social Crisis" *The Journal of Peasant Studies* 3, no.1 (1975): 1-9.
<http://dx.doi.org/10.1080/03066157508437962>
- Greene, Jack P. *The Intellectual Construction of America*. Chapel Hill: University of North Carolina Press, 1997.
- Green, Stephen. "Negotiating with the Future: the Culture of Modern Risk in Global Financial Markets." *Environment and Planning D: Society and Space*, 18 (2000): 77-89.
- Greengrass, Mark, Michael Leslie, and Timothy Raylor, eds. *Samuel Hartlib and Universal Reformation: Studies in Intellectual Communication*. Cambridge: Cambridge University Press, 2002.
- Greengrass, Mark. "Three Foreigners: Philosophers of the Puritan Revolution." In *Hugh Trevor-Roper: the Historian*, edited by Blair Worden. London: I.B. Tauris & Co., 2016.
- Greer, Allan. "Commons and Enclosure in the Colonization of North America." *The American Historical Review* 117, no. 2 (2012): 365-386.

- Gregory, Jon. "Mapping Improvement: Reshaping Rural Landscapes in the Eighteenth Century." *Landscapes* 6, no.1 (2005): 62-82.
- Grindon, Gavin "Surrealism, Dada, and the Refusal of Work: Autonomy, Activism and Social Participation in the Radical Avant-garde." *Oxford Art Journal* 31, no.1 (2011): 79-96.
- Guerra, Gustavo. "Henry James's Paradoxical Bowl: The Reinstatement of Doubt in "Fin-de-Siècle" America." *Style* 32, no. 1 (1998): 60-79. <http://www.jstor.org/stable/42946409>.
- Guinand, Cédric. "The Creation of the ISSA and the ILO." *International Social Security Review* 61, no. 1 (2008): 81-98.
- Gunder Frank, Andre. *Capitalism and Underdevelopment in Latin America*, Vol. 93. New York: NYU Press, 1967.
- Gurminder K. Bhambra. *Rethinking Modernity: Postcolonialism and the Sociological Imagination*. Basingstoke: Palgrave, 2007.
- Haberman, Steven. "Landmarks in the History of Actuarial Science (up to 1919)." *Actuarial Research Paper, no. 84. Faculty of Actuarial Science & Insurance*. London: City University London, 1996): 1-62, <http://openaccess.city.ac.uk/2228/>.
- Habermas, Jürgen. "Modernity's Consciousness of Time and Its Need for Self- Reassurance." In *The Philosophical Discourse of Modernity: Twelve Lectures*. Cambridge, Mass.: MIT Press, 1990.
- Habermas, Jürgen. *The Philosophical Discourse of Modernity*. John Wiley & Sons, 2018.
- Hacking, Ian. "Biopower and the Avalanche of Printed Numbers." *Humanities in Society* 5 (1982): 279-95.
- Hacking, Ian. *The Emergence of Probability: A Philosophical Study of Early Ideas About Probability, Induction and Statistics*. London: Cambridge University Press, 1975.
- Hacking, Ian. "The Logic of Pascal's Wager." *American Philosophical Quarterly* 9, no. 2 (1972): 186-192.
- Hacking, Ian. 'Making up People.' In *Reconstructing Individualism: Autonomy, Individuality and Self*, edited by Thomas C. Heller, Morton Sosna, and David E. Wellbery, 222-36. Stanford, CA: Standford University Press.
- Hacking, Ian. *The Taming of Chance*. Cambridge: Cambridge University Press, 1990.
- Haddad, Emma. *The Refugee in International Society: Between Sovereigns, Vol. 106*. Cambridge: Cambridge University Press, 2008.
- Haggerty, Kevin D. and Richard V. Ericson. "The Surveillant Assemblage." *British Journal of Sociology* 51, no. 4 (December 2000) 605–622.

- Hall, Stuart and David Held. *Modernity: An Introduction to Modern Societies*. Oxford: Blackwell, 1996.
- Hall, Stuart, David Held, and Anthony McGrew. *Modernity and its Futures: Understanding Modern Societies, Book IV*. Cambridge, UK: Polity Press, 1992.
- Hannam, James. *God's Philosophers: How the Medieval World Laid the Foundations of Modern Science*. London: Icon Books, 2009.
- Harding, David. "Objects of English Colonial Discourse: the Irish and Native Americans." *Nordic Irish Studies* 4 (2005): 37-60.
- Harley, J.B. "Maps, Knowledge and Power." In *The Iconography of Landscape: Essays on the Symbolic Representation, Design and Use of Past Environments*, edited by Denis Cosgrove and Stephen Daniels, 277-312. Cambridge: Cambridge University Press, 1988.
- Harley, J.B. "Silences and Secrecy: the Hidden Agenda of Cartography in Early Modern Europe." *Imago Mundi*, 40 (1988), 57-76.
- Harpum, Charles. "Does Feudalism Have a Role in 21st Century Land Law?" *Amicus Curiae*, no. 23 (January 2000): 21-25.
- Harris, Cole. "How Did Colonialism Dispossess? Comments from an Edge of Empire." *Annals of the Association of American Geographers* 94, no. 1 (2004): 165-82.
<http://www.jstor.org/stable/3694073>.
- Harvey, David. *The Condition of Postmodernity: An Enquiry into the Origins of Cultural Change*. Cambridge, MA: Blackwell, 1990.
- Harvey, David. "The Enigma of Capital and the Crisis this Time." *Reading Marx's Capital with David Harvey*, August 30, 2010. <http://davidharvey.org/2010/08/the-enigma-of-capital-and-the-crisis-this-time>.
- Harvey, David. *Marx, Capital, and the Madness of Economic Reason*. Oxford: Oxford University Press, 2017.
- Harvey, David. *17 Contradictions and the End of Capitalism*. Oxford: Oxford University Press, 2014.
- Harvey, David. *Spaces of Hope*. Berkeley: University of California Press, 2000.
- Harvey, P.D.A. *Maps in Tudor England*. Chicago: University of Chicago Press, 1993.
- Hawken, Paul. *Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming*. New York, NY: Penguin Books, 2017.
- Hawley, J.P. "Dodd-Frank, Financial Institution Rescues and Financial Crisis: The Problem of Too Interconnected to Fail." *Revue d'Economie Financiere* 105, no. 3 (2012): 251-263.

- Hay, J.R. "The Origins of the Liberal Welfare Reforms." In *Studies in Economic and Social History*, edited by M.W. Flinn. London: MacMillan, 1983.
- Headrick, Daniel R. *When Information Came of Age: Technologies of Knowledge in the Age of Reason and Revolution, 1700-1850*. Oxford: Oxford University Press, 2000.
- Heidegger, Martin. *Being and Time*. Oxford: Blackwell, 1962.
- Heimer, Carol. *Reactive Risk and Rational Action: Managing Moral Hazard in Insurance Contracts*. Berkeley: University of California Press, 1989.
- Held, David. *Cosmopolitanism: an Agenda for a New World Order*. Cambridge: Polity Press, 1995.
- Held, David. "Principles of the Cosmopolitan Order." In *The Political Philosophy of Cosmopolitanism*, edited by Harry Brighouse and Gillian Brock. Cambridge: Cambridge University Press, 2005.
- Heller, Agnes. *A Theory of Modernity*. Malden, MA: Blackwell, 1999.
- Heller, Agnes. "The Three Logics of Modernity and the Double Bind of the Modern Imagination." In *Aesthetics and Modernity: Essays*, edited by John Rundell, 141-157. Lanham, MD: Lexington Books, 2011.
- Heller, Michael. "The National Insurance Acts 1911–1947: the Approved Societies and the Prudential Assurance Company." *Twentieth Century British History* 19, no.1 (2007) 1-28.
- Hentschel, Rose. *The Culture of Cloth in Early Modern England: Textual Construction of a National Identity*. Farnham, UK: Ashgate Publishing, 2008.
- Herman, Arthur. *The Idea of Decline in Western History*. Toronto: Simon and Schuster, 2010.
- Herschaft, Jeremy A. "Not Your Average Coffee Shop: Lloyd's of London-A Twenty-First-Century Primer on the History, Structure, and Future of the Backbone of Marine Insurance." *Tulane Maritime Law Journal* 29, no. 2 (2005) 171.
- Herschel, J.W. F. (1830). *Preliminary Discourse on the Study of Natural Philosophy*. Chicago, Chicago University Press, 1987.
- Heydon-Smith, Rose. "They Tried to Arrest me for Planting Carrots." *ucfoodobserver.com*, February 26, 2015. <http://ucfoodobserver.com/2015/02/26/they-tried-to-arrest-me-for-planting-carrots/>.
- Hickman, James. "History of the Actuarial Profession, *Encyclopedia of Actuarial Science*, 2 (2002): 1-7, 1.

- Hicks, Steven V. and Alan Rosenberg. "Nietzsche and the Transfiguration of Asceticism: An Ethics of Self-Fashioning." In *Reading Nietzsche at the Margins*, edited by Steven V. Hicks and Alan Rosenberg, 200- 238. Indiana: Purdue University Press, 2008.
- Higgs, Edward. *The Information State in England: the Central Collection of Information on Citizens since 1500*. London: Palgrave, 2004
- Higgs, Edward. *Making Sense of the Census Revisited: Census Records for England and Wales, 1801-1901*. London: Institute of Historical Research, 2005.
- Hilton, Boyd. *The Age of Atonement: The Influence of Evangelicalism on Social and Economic Thought, 1795–1865*. New York: Oxford University Press, 1988.
- Hilton, Rodney. *Bond Men Made Free: Medieval Peasant Movements and the English Peasant Rising of 1381*. London: Routledge, 1988.
- Himmelfarb, Gertrude. *The De-Moralization of Society: From Victorian Virtues to Modern Values*. New York: A.A. Knopf, 1995.
- Himmelfarb, Gertrude. *The Idea of Poverty: England in the Early Industrial Age*. New York: Vintage Books, 1984.
- Hindle, Steve. "Beating the Bounds of the Parish: Order, Memory and Identity in the English Local Community, c. 1500–1700." In *Defining Community in Early Modern Europe*, edited by M. Halvorson and K. Spierling, 205-227. Aldershot: Ashgate, 2008.
- Hindle, Steve. "Imagining Insurrection in Seventeenth-Century England: Representations of the Midland Rising of 1607." *History Workshop Journal* 66, no.1 (2008), 23, 34. <http://dx.doi.org/10.1093/hwj/dbn029>.
- Hinman, Laurence M. "Nietzsche's Philosophy of Play." *Philosophy Today* 18, no. 20 (Summer, 1974): 106-124.
- Hobsbawm, Eric. "The General Crisis of the European Economy in the 17th Century." *Past & Present* 5 (1954).
- Hobsbawm, Eric and Terence Ranger, eds, *The Invention of Tradition*. Cambridge: Cambridge University Press, 1983.
- Holstun, Jim. "Utopia Pre-Empted: Kett's Rebellion, Commoning, and the Hysterical Sublime." *Historical Materialism* 16 (2008) 3–53.
- Hopper, Vincent Foster. *Medieval Number Symbolism: Its Sources, Meaning and Influence on Thought and Expression*. Mineola, NY: Dover Publications, 2000.
- Horkheimer, Max. "Means and Ends." in *Eclipse of Reason*, edited by Max Horkheimer. New York: Oxford University Press, 1947.
- Houston, Chloë. *The Renaissance Utopia: Dialogue, Travel and the Ideal Society*. London:

- Routledge, 2016.
- Hughes, Sarah, S. *Surveyors and Statesmen: Land Measuring in Colonial Virginia*. Michigan: University of Michigan Press, 1979.
- Huizinga, Johan H. *The Waning of the Middle Ages: A Study of the Forms of Life, Thought, and Art in France and the Netherlands in the XIVth and XVth Centuries*. New York: St. Martin's Press, 1969.
- Hume, Leonard J. "Jeremy Bentham and the Nineteenth-Century Revolution in Government." *The Historical Journal* 10, no. 3 (1967): 361-375.
- Hutter, B.M. "The Role of Non-State Actors in Regulation." *The Centre for Analysis and Risk Regulation, Discussion Paper*, no.37 (April, 2006).
- Hutton, Sarah. "The Appropriation of Joseph Mede: Millenarianism in the 1640s." In *The Millenarian Turn: Millenarian Contexts of Science, Politics, and Everyday Anglo-American Life in the Seventeenth and Eighteenth Centuries*, edited by James E. Force and Richard H. Popkin, 1-15. New York: Springer Science & Business, 2001.
- Hutton, Sarah. *British Philosophy in the Seventeenth Century*. Oxford, Oxford University Press, 2015.
- Illingworth, Sarah. "Q&A/ Ahmad Matar: Learning Parkour in Gaza Made Me Feel Free," *impolitikal.com*, January 31, 2017. <https://impolitikal.com/2017/01/31/qa-ahmad-matar-learning-parkour-in-gaza-made-me-feel-free/>.
- Impavido, Gregorio and Ian Tower. "How the Financial Crisis Affects Pensions and Insurance and Why the Impacts Matter." *International Monetary Fund Working Paper* 9, no. 151. International Monetary Fund, 2009.
- Ingram, Juliet Amy. "The Conscience of the Community: The Character and Development of Clerical Complaint in Early Modern England." PhD diss., University of Warwick, 2004.
- Irigaray, Luce. *This Sex Which Is Not One*. Translated by Catherine Porter with Carolyn Burke. Ithaca: Cornell University Press, 1985.
- Irving, Sarah. "'In a Pure Soil': Colonial Anxieties in the Work of Francis Bacon." *History of European Ideas* 32, no. 3 (2006): 249-262.
- Irving, Sarah. *Natural Science and the Origins of the British Empire*. London: Routledge, 2015.
- Iverson, Torben and Philipp Rehm. *The Market for Creampuffs: Big Data and the transformation of the Welfare State*. Cambridge MA: Harvard University Press, 2016.
- Jacob, Frank and Adam Luedtke, eds., *Migration and the Crisis of the Modern Nation State?* Delaware, USA: Vernon Press, 2018.

- James Vernon. "The Ethics of Hunger and the Assembly of Society: The Techno- Politics of the School Meal in Modern Britain." *The American Historical Review* 110, no. 3 (2005): 693-725.
- Jameson, Fredric. *Postmodernism, or, the Cultural Logic of Late Capitalism*. Durham, NC: Duke University Press, 1991.
- Jameson, Fredric. *The Ideologies of Theory: The Syntax of History*. Vol. 2. Minneapolis: University of Minnesota Press, 1988.
- Jenkins, Richard. "Disenchantment, Enchantment and Re-Enchantment: Max Weber at the Millennium." *Max Weber Studies* 1 (2000); 11-32.
- Jensen, Anthony K. *Internet Encyclopedia of Philosophy*. s.v. "Friedrich Nietzsche: Philosophy of History." *Internet Encyclopedia of Philosophy*. ISSN 2161-0002 <https://www.iep.utm.edu/niet-his>.
- Jesse Goldstein. "Terra Economica: Waste and the Production of Enclosed Nature." *Antipode* 45, no.2 (2013): 357-375.
- John, A. H. "Insurance Investment and the London Money Market of the 18th Century." *Economica* 20, no. 78 (May, 1953): 137-158.
- Johnsson, Fredrik Albritton. "The Origins of Cornucopianism: A Preliminary Genealogy." *Critical Historical Studies* 1, no. 1 (2014): 151-168.
- Johnston, R.J., D. Gregory, G. A Pratt, and M. Watts, (eds.), *The Dictionary of Human Geography*, 4th ed. Malden, MA, Blackwell, 2000.
- Johnston, Stephen. "Making Mathematical Practice: Gentlemen, Practitioners and Artisans in Elizabethan England." Ph.D. Dissertation: Cambridge University, 1994.
- Johnston, Stephen. "Mathematical Practitioners and Instruments in Elizabethan England." *Annals of Science*, 48 (1991): 319-344.
- Jones, Amelia. *The Feminism and Visual Culture Reader*. London: Routledge, 2003.
- Jones, Andrew. "Land Measurement in England, 1150-1350." *Agricultural History Review* 27, no. 1 (1979): 10-18.
- Jones, Huw. "EU Scraps its Answer to U.S. Volcker Rule for Banks." *reuters.com*, October 24, 2017. <https://www.reuters.com/article/us-eu-banks-regulations/eu-scraps-its-answer-to-u-s-volcker-rule-for-banks-idUSKBN1CT285?il=0>.
- Joyce, Patrick. "Society, State and Economy." In "United Kingdom: History, Geography, Facts and Points of Interest." *Brittanica Online*. <https://www.brittanica.com/place/United-Kingdom/society-state-and-economy>.

- Junker, Lukas, Samuel Gerssen and Marlous Jutte. "Global Insurance Industry Insights: an In Depth Perspective." *McKinsey Global Insurance Pools*, 4th edition. McKinsey & Company, 2014.
- Kaboub, Fadhel. "Socialization of Investment." In *International Encyclopedia of the Social Sciences*, 2nd edition, Vol. 7, edited by William A. Darity, Jr. Detroit, MI: Macmillan Reference USA, 2008.
- Kain, Roger J.P. "Maps and Rural Land Management in Early Modern Europe." In *The History of Cartography: Vol. 3: Cartography in the European Renaissance*, edited by David Woodward. Chicago, University of Chicago Press, 2007. <http://www.press.uchicago.edu/books/HOC/>.
- Kalberg, Stephen. "Max Weber's Types of Rationality: Cornerstones for the Analysis of Rationalization Processes in History." *The American Journal of Sociology* 85, no. 5 (March, 1980): 1160.
- Kamen, Henry. *Early Modern European Society*. London: Routledge, 1999.
- Kaye, Joel. "Money and Administrative Calculation as Reflected in Scholastic Natural Philosophy." In *Arts of Calculation: Quantifying Thought in Early Modern Europe*, edited by David Glimp and Michelle R. Warren, 1-18. New York: Palgrave, 2004.
- Kearns, Gerry. "Bare Life, Political Violence, and the Territorial Structure of Britain and Ireland." In *Violent Geographies: Fear, Terror and Political Violence*, edited by Derek Gregory and Allan Pred, 7-36. New York: Routledge, 2007.
- Keely, Charles, B. "How Nation-States Create and Respond to Refugee Flows." *The International Migration Review* 30, no. 4 (1996): 1046-066. Doi: 10.2307/2547603.
- Kertzer, David I and Dominique Arel, eds. *Census and Identity: The Politics of Race, Ethnicity, and Language in National Censuses*. Cambridge: Cambridge UP, 2002.
- Kidd, I.J. "Objectivity, Abstraction, and the Individual: the Influence of Søren Kierkegaard on Paul Feyerabend." *Studies in the History of the Philosophy of Science* 42, no.1 (March, 2011): 125-32.
- Kierkegaard, Søren. *Concluding Unscientific Postscript*. Vol. 5524. Princeton: Princeton University Press, 2019.
- Kirby, Alex. *Kick the Habit: a UN Guide to Climate Neutrality*. UNEP/Earthprint, 2008. digital.library.unt.edu/ark:/67531/metadc28573.
- Klaus, Ian. *Forging Capitalism: Rogues, Swindlers, Frauds and the Rise of Modern Finance*. New Haven & London: Yale University Press, 2014.
- Klein, Bernhard. "The Lie of the Land: English Surveyors, Irish Rebels and "The Faerie Queene." *Irish University Review* 26, no.2 (Autumn/Winter, 1996), 207-225.

- Klein, Jürgen. *The Stanford Encyclopedia of Philosophy Online*, s.v. "Francis Bacon," ed. Edward N. Zalta, 2016. <https://plato.stanford.edu/archives/win2016/entries/francis-bacon/>.
- Kneale, James and Shaun French. "Excessive Financialisation: Insuring Lifestyles, Enlivening Subjects, and Everyday Spaces of Biosocial Excess." *Environment and Planning D: Society and Space* 27, no.6 (2009): 1030-1053.
- Knight, M. D. "Mitigating Moral Hazard in Dealing with Problem Financial Institutions: Too Big to Fail? Too Complex to Fail? Too Interconnected to Fail?" In *Financial Crisis Management and Bank Resolution*, edited by John Raymond LaBrosse, Rodrigo Olivares-Caminal, and Dalvinder Singh. London: Informa, 2009.
- Knights, David and Theo Vurdubakis. "Calculations of Risk: Towards an Understanding of Insurance as a Moral and Political Technology." *Accounting Organization and Society* 18, no. 7/8 (1993) 729-764.
- Knobl, Wolfgang. "Theories That Won't Pass Away: The Never-ending Story." In *Handbook of Historical Sociology*, edited by Gerard Delantey and Engin F. Isin, 96–107. London: Sage, 2003.
- Kolakowski, Leszek, *Modernity on Endless Trial*. Chicago: University of Chicago, 1997.
- Kompridis, Nikolas. "Time-Consciousness and Transformation: On Modernity's Relation to the Future." In *The Transformation of Modernity: Aspects of the Past, Present and Future of an Era*, edited by Michael Hviid Jacobsen, 3-18. London and New York: Routledge, 2017.
- Konings, Martijn. "Governing the System: Risk, Finance, and Neoliberal Reason." *European Journal of International Relations* 22, no. 2 (2016): 268-288.
- Konnert, Mark. *Early Modern Europe: The Age of Religious War, 1559-1715*. Toronto: University of Toronto Press, 2008.
- Konosuke, Odaka. "The Evolution of Social Policy in Japan." World Bank, Washington, DC: World Bank, 2002.
<http://documents.worldbank.org/curated/en/580821468042904090/The-evolution-of-social-policy-in-Japan>.
- Koselleck, Reinhardt. *Futures Past: On the Semantics of Historical Time*. Cambridge, MA: MIT Press, 1985.
- Krahman, Elke. "The Commodification of Security in the Risk Society." *School of Sociology, Politics, and International Studies, University of Bristol Working Paper*, no. 6-8 (2008), 9. <http://bura.brunel.ac.uk/handle/2438/9667>.
- Kristeva, Julia. *Desire in Language: A Semiotic Approach to Literature and Art*. Edited by Leon S. Roudiez, translated by Thomas Gora, Alice Jardine, and Leon S. Roudiez. New York: Columbia University Press, 1980.

- Kruger, Lorenz, Lorraine J. Daston, and Michael Heidelberger. *The Probabilistic Revolution, Vol. 1: Ideas in History; Vol. 2: Ideas in the Sciences*. Cambridge MA: The MIT Press, 1987.
- Kunitzsch, Paul. *The Arabs and the Stars: Texts and Traditions on the Fixed Stars and Their Influence in Medieval Europe*. Oxford: Routledge, 2017.
- Kunreuther, Howard and Erwann Michael Kerjan. "Managing Catastrophes through Insurance: Challenges and Opportunities for Reducing Future Risk." *Risk Management and Decision Processes Centre*. Philadelphia, PA: The Wharton School of the University of Pennsylvania, 2009.
- Kupfer, Marcia. "Medieval World Maps: Embedded Images, Interpretive Frames." *Word & Image* 10, no. 3 (1994): 262-288, 262.
- Kupperman, Karen Ordahl. *Indians and English: Facing off in Early America*. Ithaca, NY: Cornell University Press, 2000.
- Kupperman, Karen Ordahl. *The Jamestown Project*. Cambridge, MA: Belknap, 2009.
- Kupperman, Karen Ordahl, ed. *Major Problems in American Colonial History: Documents and Essays*, 2nd ed. Boston: Houghton Mifflin, 2000.
- Kuška, Martin. "New Sources of Fear in a Late Modern Society: The Globalization of Risk." In *Reconstructing Emotional Spaces: From Experience to Regulation*, edited by Radek Trnka, Karel Balcer, and Martin Kuska, 105-119. Prague: Prague College of Psychosocial Studies Press, 2011.
- Lacan, Jacques, *Ecrits: The First Complete Edition in English*. New York: W.W. Norton & Company, 2006.
- Lackey, Chad. "Review: Giddens's 'Modernity and Self-Identity.'" *Berkeley Journal of Sociology* 37 (1992): 181-185.
- Lamb, Matthew. "Negating the Negation: The Practice of Parkour in Spectacular City." *Kaleidoscope* 9, no. 6 (2010): 91-106.
- Langley, Paul. "The Making of Investor Subjects in Anglo-American Pensions." *Environment and Planning D: Society and Space*, 24 (2006): 919-934, 920.
- Langley, Paul. *Liquidity Lost: The Governance of the Global Financial Crisis*. Oxford: Oxford University Press, 2015.
- Lantschner, Patrick. "Revolts and the Political Order of Cities in the Late Middle Ages." *Past & Present* 225, no. 1 (2014): 3-46.
- Latimer, Hugh (1549). "Seven Sermons before Edward VI, on Each Friday in Lent." In *Selected Sermons of Hugh Latimer*, edited by Allen G. Chester. Associated University Press, 1978.
- Latour, Bruno. *We Have Never Been Modern*. Translated by Catherine Porter. Cambridge, MA:

- Harvard University Press, 1991.
- Le Goff, Jacques. "Merchant's Time and Church's Time." *Time, Work, and Culture in the Middle Ages*, translated by Arthur Goldhammer, 29-42. Chicago: Chicago University Press, 1982.
- Le Pan, Don. *The Cognitive Revolution in Western Culture*. Basingstoke: Macmillan, 1996.
- Lears, Jackson T.J. *No Place for Grace: Antimodernism and the Transformation of American Culture, 1880-1920*. Chicago: University of Chicago Press, 1994.
- Lee, Melissa M. and Zhang Nan. "Legibility and the Informational Foundations of State Capacity." *The Journal of Politics* 79, no. 1 (2017): 118-132.
- Lefebvre, Henri. *State, Space, World: Selected Essays*. Minneapolis: University of Minnesota Press, 2009.
- Lefebvre, Henri. *The Production of Space*. Oxford: Blackwell, 1991.
- Lefort, Claude. *Democracy and Political Theory*. Translated by D. Macey. Minneapolis: University of Minnesota Press, 1988.
- Levack, Brian P. "Francis Bacon by Daniel R. Coquillette," *The American Journal of Legal History* 39, no. 1 (1995): 112-113.
- Levao, Ronald. "Francis Bacon and the Mobility of Science." *Representations*, 40 (Autumn 1992): 1-32.
- Leveilee, Nicholas P. "Copernicus, Galileo, and the Church: Science in a Religious World," *Inquiries Journal* 3, no. 05 (2011): 1-2.
- Levin, David Michael. *The Discursive Construction of Sight in the History of Philosophy*. Cambridge and London: MIT Press, 1999.
- Levine, David. *At the Dawn of Modernity: Biology, Culture, and Material Life in Europe after the Year 1000*. Oakland, CA: University of California Press, 2001.
- Levine, Joseph M. *Between the Ancients and the Moderns: Baroque Culture in Restoration England*. New Haven: Yale University Press, 1999.
- Levi-Strauss, Claude. *Structural Anthropology*. Translated by Claire Jacobson and Brooke Grundfest Schoepf. New York: Basic Books, 1958.
- Levi-Strauss, Claude. *The Elementary Structures of Kinship*. Boston; Beacon Press, 1969.
- Levitan, Kathrin. *A Cultural History of the British Census: Envisioning the Multitude in the Nineteenth Century*. New York: Springer, 2011.

- Lewis, Jane. "The Voluntary Sector in the Mixed Economy of Welfare." In *Before Beveridge: Welfare beyond the Welfare State*, edited by David Gladstone, 10-17. Trowbridge, UK: The Cromwell Press, 1999.
- Lichenstein, Nelson. *State of the Union*. Princeton: Princeton Press, 2002.
- Liedtke, Patrick M. "What's Insurance to a Modern Economy?" *The Geneva Papers on Risk and Insurance- Issues and Practice* 32, no. 1 (2007): 211–221.
- Lin, Albert C. "A Potentially Disastrous Distraction to Climate Change." *sfchronicle.com*, December 21, 2017. <https://www.sfchronicle.com/.../A-potentially-disastrous-distraction-to-climate-124492>.
- Lindberg, David C. *The Beginnings of Western Science: The European Scientific Tradition in Philosophical, Religious, and Institutional Context, Prehistory to AD 1450, 2nd Edition*. Chicago: University of Chicago Press, 2010.
- Lindgren, Uta. "Land Surveys, Instruments, and Practitioners in the Renaissance." In *The History of Renaissance Cartography: Interpretive Essays, The History of Cartography, Volume 3, Part One*, edited by David Woodward, 477-508. Chicago: University of Chicago Press, 2007.
- Linebaugh, Peter. "Karl Marx, the Theft of Wood, and Working-Class Composition: A Contribution to the Current Debate." *Social Justice* 40, nos. 1–2 (2014): 137-161.
- Linnaeus, Carolus. *Carolus Linnaeus's Systema Naturae*. Introduction by M.S. J. Engel-Ledeboer and R. Engel, 22. <https://trove.nla.gov.au/version/21159109>.
- Lo, Andrew. "The Game of Leaves: an Inquiry into the Origin of Chinese Playing Cards." *Bulletin of the School of Oriental and African Studies* 63, no. 3 (2000): 397-400.
- Lobo- Guerrero, Luis. *Insuring Security: Biopolitics, Security and Risk*. Abingdon: Routledge, 2011.
- Locke, John (1689). *Second Treatise of Government: An Essay Concerning the True Original, Extent and End of Civil Government*, introduced by Jonathan Bennett. Hoboken, NJ: John Wiley & Sons, 2014. <https://www.earlymoderntexts.com/assets/pdfs/locke1689a.pdf>.
- Lohmann, Larry. "Review Essay: Capital and Climate Change." *Development and Change* 42, no.2, (2011): 649–668 and "Carbon Trading, Climate Justice and the Production of Ignorance: Ten Examples." *Development* 51, no. 3 (2008): 359–365.
- Lohmann, Larry. "Uncertainty Markets and Carbon Markets: Variations on Polanyian Themes." *New Political Economy* 15, no.2 (2010): 225–254.
- Lopez, Steve. "In the Weeds of Bureaucratic Insanity There Sprouts a Small Reprieve." *latimes.com*, August 20, 2011. <http://articles.latimes.com/2011/aug/20/local/la-me-0821-lopez-garden-20110818>.

- Lorenz Chris. "Scientific Historiography." In *Blackwell Companion to Philosophy of History and Historiography*, edited by Aviezer Tucker, 398-408. Oxford: Blackwell, 2008.
- Lowith, Karl. *Max Weber and Karl Marx*. Edited by Tom Bottomore and William Outhwaite. London and New York: Routledge, 1993.
- Luhmann, Niklas. "Describing the Future." In *Observations on Modernity*, translated by William Whobrey, 212-235. Stanford, CA: Stanford University Press, 1998.
- Luhmann, Niklas. "The Future Cannot Begin: Temporal Structures in Modern Society." *Social Research* 43 (1976): 130 – 152.
- Luhmann, Niklas. *Risk*. Berlin; New York: Walter de Gruyter, 1993.
- Luhmann, Niklas. *Risk: a Sociological Theory*. New York: Routledge e-book, 2017.
<https://doi.org/10.4324/9781315128665>.
- Lupton, Deborah, ed. *Risk and Sociocultural Theory: New Directions and Perspectives*. Cambridge: Cambridge University Press, 1999.
- Lurvink, Karin. "Underwriting Slavery: Insurance and Slavery in the Dutch Republic (1718–1778)." *Slavery & Abolition* (2019): 1-22.
- Lyotard, Jean-François. *The Postmodern Condition: A Report on Knowledge*, Vol. 10. Minneapolis: University of Minnesota Press, 1984.
- MacCulloch, Diarmaid. "Kett's Rebellion in Context." *Past & Present* 84, no.1, (1979): 36-59.
- MacDonagh, Oliver. *A Pattern of Government Growth 1800–60: The Passenger Acts and their Enforcement*. London: MacGibbon and Kee, 1961.
- Magnusson, Warren. *The Search for Political Space: Globalization, Social Movements, and the Urban Political Experience, Vol.1*. Toronto: University of Toronto Press, 1996.
- Maioni, Antonia. "New Century, New Risks: The Marsh Report and the Post War Welfare State in Canada." *Policy Options*. August, 2004,
<http://policyoptions.irpp.org/magazines/socialpolicy-in-the-21st-century/new-century-new-risks-the-marsh-report-and-the-post-war-welfare-state-in-Canada/>.
- Malanima, Paolo. *Pre-modern European Economy: One Thousand Years (10th-19th Centuries)*. Leiden: Brill, 2009.
- Malthus, Thomas Robert. *An Essay on the Principle of Population, as it Affects the Future Improvement of Society, with Remarks on the Speculations of Mr. Godwin, M. Condorcet, and Other Writers*. London: Johnson, 1798; New Jersey: The Lawbook Exchange, Ltd., 2007).
- Mandler, Peter. *Liberty and Authority in Victorian Britain*. Oxford: Oxford UP, 2006.

- Mandler, Peter. "The Making of the New Poor Law Redivivis." *Past and Present*, 117 (1987): 131-157.
- Manning, Roger B. *Village Revolts: Social Protest and Popular Disturbances in England, 1509-1640*. New York; Oxford University Press, 1988.
- Marcuse, Herbert. *Eros and Civilization: Philosophical Inquiry into Freud*. Boston, MA: Beacon Press, 1955.
- Markham, Gervaise, (1614) "Of Plashing of Hedges," *The Second Booke of the English Husbandman* (Ann Arbor, MI; Oxford, UK: Early English Books Online & Text Creation Partnership, 2003) <https://quod.lib.umich.edu/e/eebo/A06927.0001.001?view=toc>.
- Marshall, T.H. *Citizenship and Social Class: And Other Essays*. Cambridge: Cambridge University Press, 1950.
- Martin, Jay. "Scopic Regimes of Modernity." In *Vision and Visuality*, edited by Hal Foster, 3-23. Seattle: Bay Press, 1988.
- Martin, Julian. *Francis Bacon, the State, and the Reform of Natural Philosophy*. Cambridge: Cambridge University Press, 1992.
- Martin, Patricia P. and David A. Weaver. "Social Security: A Program and Policy History." *Social Security Benefit* 66, no.1 (2005).
- Martins, Susanna Wade and Tom Williamson, "Floated Water-Meadows in Norfolk: a Misplaced Innovation." *The Agricultural History Review*, 42 (1994): 20-37.
- Marx, Karl. *Capital: a Critique of Political Economy, Volume One*. London: Penguin Books, 1990.
- Marx, Karl and Frederick Engels (1859) *Collected Works, Volume 1*. New York: International Publishers, 1975.
- Marx, Karl and Friedrich Engels (1848). *The Communist Manifesto*. London: Pluto Press, 2008.
- Marx, Karl. "Debates on the Law of the Theft of Wood." *Rheinische Zeitung* 298, no. 303 (1842): 1-34.
<http://www.marxists.org/archive/marx/works/1840/rhe-zeit/1842wood.htm>.
- Marx, Karl, and Friedrich Engels, *The Economic and Philosophic Manuscripts of 1844 and the Communist Manifesto*. Amherst, NY: Prometheus Books, 2009.
- Marx, Karl. *Grundrisse: Foundations of the Critique of Political Economy*, translation & foreword by Martin Nicolaus, 1973. London: Penguin, 2005.

- Marzec, Robert P. "Enclosures, Colonization and the *Robinson Crusoe* Syndrome: A Genealogy of Land in a Global Context." *Boundary 2* 29, no. 2 (2002): 129-156. <https://doi.org/10.1215/01903659-29-2-129>.
- Masci, Pietro. "The History of Insurance: Risk, Uncertainty and Entrepreneurship." *Journal of the Washington Institute of China Studies* 5, no. 3 (Spring 2011): 25-68, 32.
- Mason, Paul. *PostCapitalism: A Guide to our Future*. London: Allen Lane, 2015.
- Mass, Harold. "The Odds Are 11 Million to 1 that You'll Die in a Plane Crash," in *The Week*. July 8, 2013. <https://theweek.com/articles/462449/odds-are-11-million-1-that-you'll-ide-plane-crash>.
- Massey, Doreen. "A Global Sense of Place." In *Space, Place, and Gender*. Minnesota: University of Minnesota Press, 1994.
- Massey, Doreen. *Space, Place, and Gender*. Minneapolis: University of Minnesota Press, 1994.
- Massey, Doreen. *Spatial Divisions of Labour*. Basingstoke: Macmillan, 1984.
- Matei, Oana. "Gabriel Plattes, Hartlib Circle and the Interest in Husbandry in the Seventeenth Century England." *Prolegomena* 11, no. 2 (2012): 207–224.
- Mattlick, Paul. *Business as Usual: The Economic Crisis and the Failure of Capitalism*. Islington, UK: Reaktion Books, 2011.
- Max, Weber. "Science as a Vocation." In *Science and the Quest for Reality*, edited by Alfred I Tauber. New York, NY: Springer, 2016.
- Mayfield, Ben and Lu Xu. *The Conversation*, January 24, 2018, <http://theconversation.com/its-time-we-let-the-feudal-leftover-of-leasehold-ownership-expire-90406>.
- McCay, G. A. *Radical Gardening: Politics, Idealism and Rebellion in the Garden*. London: Frances Lincoln, 2011.
- McCormick, Ted. "The Advancement of Policy: Art and Nature in William Petty's Political Arithmetic." *Paper Delivered at the Annual Meeting of the History of Science Society in Washington, DC*. Vol. 3 (2007).
- McCormick, Ted. "Political Arithmetic and Sacred History: Population Thought in the English Enlightenment, 1660-1750." *Journal of British Studies* 52:4 (2013): 829-57.
- McCormick, Ted. "Who were the Pre-Malthusians." In *New Perspectives on Malthus*, edited by Robert J. Mayhew, 25-51. Cambridge, Cambridge University Press, 2016.
- McDonagh, Briony and Stephen Daniels. "Enclosure Stories: Narratives from Northamptonshire." *Cultural Geographies* 19, no.1 (2012) 107-121. DOI: 10.1177/1474474011427361.

- McDonagh, Briony A.K. "Subverting the Ground: Private Property and Public Protest in the Sixteenth-century Yorkshire Wolds." *Agricultural History Review* 57, no. 2 (2009): 191-206.
- McFall, Liz. "The Disinterested Self: the Idealized Subject of Life Assurance." *Cultural Studies* 21, no. 4-5 (2007): 591-609.
- McFall, Liz. "Prudentialism and the 'Missionaries' of Life Assurance." *CRESC Working Papers*, 32 (2007): 1-17.
- McNally, David. *Monsters of the Market: Zombies, Vampires and the Global Capitalism*. Leiden & Boston: Brill, 2011.
- McRae, Andrew. "To Know One's Own: Estate Surveying and the Representation of the Land in Early Modern England." *The Huntington Library Quarterly* 56, no. 4 (Autumn, 1993): 333-357.
- McRae, Andrew. *God Speed the Plough: the Representation of Agrarian England, 1500-1660* Cambridge University Press, 2002.
- Meek, Ronald L. "Smith, Turgot, and the 'Four Stages' Theory." In *Smith, Marx, & After*, 18-32. Boston, MA: Springer, 1977.
- Melzer, Sara E. "Time, Myth and the Quarrel between the Ancients and the Moderns: Racine and Fontenelle." In *Time: Sense, Space, Structure*, edited by Nancy van Deusen and Leonard Michael Koff, 261-283. Leiden: Netherlands, BRILL, 2016.
- Merle, Renae. "Federal Reserve Votes Ease Rule Aimed at Preventing Big Banks from Making Risky Financial Bets." *thewashingtonpost.com*, May 30, 2018.
https://www.washingtonpost.com/news/business/wp/2018/05/30/wall-street-is-about-to-snag-one-of-its-biggest-victories-of-the-trump-era/?utm_term=.9593380d83e0.
- Merriam-Webster Online*, s.v. "Risk." Accessed July 2017.
https://www.merriamwebster.com/dictionary/risk?utm_campaign=sd&utm_medium=serp&utm_source=jsonld.
- Merrifield, A. "Place and Space: A Lefebvrian Reconciliation." *Transactions of the Institute of British Geographers* 18 (1993): 516-531.
- Mesch, Gustavo S. and Kent P. Schwirian. "Confidence in Government and Vaccination Willingness in the USA." *Health Promotion International* 30, no. 2 (June 2015): 213-221. <http://doi.org/10.1093/heapro/dau094>.
- Metz, Karl H. "Paupers and Numbers: The Statistical Argument for Social Reform in Britain." In *The Probabilistic Revolution Volumes 1 and 2 and Volume 1; Ideas in History*, edited by Lorenz Krüger, Lorraine Daston, Michael Heidelberger, 337-350. Cambridge MA: MIT Press, 1987.

- Metz, Karl H. "Social Thought and Social Statistics in the Early Nineteenth Century: the Case of Sanitary Statistics in England." *International Review of Social History* 29 (1984).
- Miceli, Vanessa. "Dispossession as a Permanent Temporariness: A Comparative Reading of Poor Laws in Early Nineteenth Century England and Refugee Rights in the Age of Neoliberalism." MA Thesis, York University, 2009.
- Miller, John. *The Glorious Revolution*. London and New York: Routledge, 2014.
- Mills, Evan. "Insurance in a Climate of Change." *Science*. Aug. 12 2005, 309, no. 5737: 1040-1044.
- Mingay, Gordon Edmund. *Enclosure and the Small Farmer in the Age of the Industrial Revolution*. London: Macmillan International Higher Education, 2016.
- Mingay, Gordan. *Parliamentary Enclosure in England: An Introduction to its Causes, Incidence and Impact 1750-1850*. London: Longman, 1997.
- Mirzoeff, Nicholas. "The Right to Look." *Critical Inquiry* 37, no.3 (2011): 473-496.
- Mitchell, Timothy. *The Rule of Experts: Egypt, Technopolitics and Modernity*. Berkeley, University of California Press, 2000.
- Mitchell, W. J.T. *Landscape and Power*. University of Chicago Press, 2002.
- Mitchell, W.J.T. "Interdisciplinarity and Visual Culture." *Art Bulletin* 77, no.4 (1995): 540-4.
- Mohanty, Satya P. ed. *Colonialism, Modernity, and Literature: A View from India*. Palgrave: New York, 2011.
- Mohy, Sajid, Ul Din, Arpah Abu-Bakar, and Angappan Regupathi. "Does Insurance Promote Economic Growth: A Comparative Study of Developed and Emerging/ Developing Economies." *Cogent Economics & Finance* 5, no. 1 (2017): 1-12.
<https://doi.org/10.1080/23322039.2017.1390029>.
- Moland, Lydia L. *The Stanford Encyclopedia of Philosophy*. s.v."Friedrich Schiller.", ed. Edward N. Zalta. Stanford, CA: *The Stanford Encyclopedia of Philosophy*, 2017.
<https://plato.stanford.edu/archives/sum2017/entries/schiller>. Accessed January, 2019.
- Mondschein, Ken and Denis Casey. "Time and Time-keeping: A General Overview." In *Handbook of Medieval Culture, Volume 2*, edited by Albrecht Classen, 1659-1679. Berlin & New York: Walter de Gruyter GmbH & Co KG, 2015.
- More, Thomas (1515). *Utopia*.
<https://www.marxists.org/reference/archive/more/works/utopia/index.html>.
- Morris, John. *Securing Finance, Mobilizing Risk: Money Cultures at the Bank of England*. London: Routledge, 2018.

- Morse, Victoria. "The Role of Maps in Later Medieval Society: Twelfth to Fourteenth Century." In *Cartography in the European Renaissance* Vol. 3, Part One, edited by David Woodward, 25-52. University of Chicago Press, 2007.
- Munting, Roger. *An Economic and Social History of Gambling in Britain and the USA*. Manchester and New York: Manchester University Press, 1996.
- Munzer, Stephen R. *A Theory of Property*. Cambridge: Cambridge University Press, 1990.
- Murphy, Anne L. *The Origins of English Financial Markets: Investment and Speculation before the South Sea Bubble*. New York: Cambridge University Press, 2009.
- Mythen, Gabriel. *Understanding the Risk Society: Crime, Security and Justice*. London: Palgrave-McMillan, 2014.
- McNally, David. *Monsters of the Market: Zombies, Vampires and the Global Capitalism*. Leiden & Boston: Brill, 2011.
- NAIC (National Association of Insurance Commissioners). "Usage-Based Insurance and Telematics." In *The Centre for Insurance Policy and Research*. Feb, 06, 2018. http://www.naic.org/cipr_topics/topic_usage_based_insurance.html.
- Neeson, J.M. *Commoners: Common Right, Enclosure, and Social Change in England. 1700–1820*. Cambridge: Cambridge University Press, 1993.
- Neeson, Jeanette. "The Opponents of Enclosure in Eighteenth-Century Northamptonshire." *Past & Present* 105 (1984): 114-139.
- Nelson, Jacqueline. April 2, 2014, updated March 25, 2017. "Insurers Promise Discounts to Drivers Who Allow In-Car Monitoring." In *The Globe and Mail*, <https://www.theglobeandmail.com/globe-drive/culture/technology/insurers-see-profits-in-driving-data/article17782343/>.
- Netzloff, Mark. *England's Internal Colonies: Class, Capital, and the Literature of Early Modern English Colonialism*. London; Macmillan, 2003.
- Netzloff, Mark. "Introduction." In *John Norden's The Surveyor's Dialogue (1618): A Critical Edition*, edited by Mark Netzloff. Farnham UK: Ashgate Publication, 2010.
- Newman, Charlotte. "To Punish or Protect: the New Poor Law and the English Workhouse." *International Journal of Historical Archaeology* 18, no. 1 (2014): 122-145.
- Newman, William R. *Promethean Ambitions: Alchemy and the Quest to Perfect Nature*. Chicago: University of Chicago Press, 2004.
- Niaz, Mansoor. "Conclusion: Understanding the Elusive Nature of Objectivity." In *Evolving Nature of Objectivity in the History of Science and its Implications for Science Education*, 179-196. New York: Springer, 2018.

- Nicholls, George. *A History of the English Poor Law* Vol. 3. London: Routledge, 2016.
- Niermeier-Dohoney, Justin Robert. *A Vital Matter: Alchemy, Cornucopianism, and Agricultural Improvement in Seventeenth-Century England*. Chicago: University of Chicago Press, 2018.
- Nietzsche, Friedrich (1872). *The Birth of Tragedy and Other Writings*, edited by Raymond Guess and Ronald Speirs, translated by Ronald Speirs. Cambridge: Cambridge University Press, 1999.
- Nietzsche, Friedrich. *The Gay Science: with a Prelude in German Rhymes and an Appendix of Songs*, edited by Bernard Williams and translated by Josefine Nauckhoff. Cambridge: Cambridge University Press, 2001.
- Nietzsche, Friedrich. "On the Uses and Disadvantages of History for Life." In *Untimely Meditations*, translated by RJ Hollingdale, 57-123. Cambridge: Cambridge University Press, 1983.
- Nietzsche, Friedrich (1873). "The Uses and Disadvantages of History for Life." In *Untimely Meditations*, edited by Daniel Breazeale, translated by R.J. Hollingdale. Cambridge: Cambridge University Press, 1997.
- Nietzsche, Friedrich. *Thus Spake Zarathustra*. New York, NY: Algora Publishing, 2003.
- Nietzsche, Friedrich. "What One Should Learn from Artists." In *The Gay Science*, Book IV, §299. Translated by Walter Kaufmann, New York: Vintage Books, 1974.
- Noone, Timothy B. "Scholasticism." In *A Companion to Philosophy in the Middle Ages*, edited by Jorge J. E. Gracia and Timothy N. Noone, 55-64. Malden, MA Blackwell Publishing, 2002.
- Norden, John. *John Norden's The Surveyor's Dialogue (1618): A Critical Edition*, edited by Mark Netzloff. Farnham, UK: Ashgate publishing, 2010.
- Nyers, Peter. *Rethinking Refugees: Beyond States of Emergency*. New York: Routledge, 2006.
- O'Connell, Anne. "Building Their Readiness for Economic 'Freedom': The New Poor Law and Emancipation." *The Journal of Sociology and Social Welfare* 36, no.2 (2009): 85-103.
- O'Malley, Pat. "Imagining Insurance: Risk, Thrift and Life Insurance in Britain." *Legal Studies Research Paper* 9, no. 119 (2009). <http://ssrn.com/abstract=1491898>.
- O'Malley, Pat. *Risk, Uncertainty and Government*. Abingdon, UK: Routledge-Cavendish, 2012.
- O'Malley, Pat. "'Uncertainty Makes us Free': Liberalism, Risk and Individual Security." *BEHEMOTH-A Journal on Civilisation* 2, no. 3 (2009): 24-38.

- O'Neil, John. "Markets and the Environment: the Solution is the Problem." *Economic and Political Weekly* 36, no. 21 (May 26 - Jun. 1, 2001): 1865-1873.
<http://www.jstor.org/stable/4410667>.
- OECD. "Financial Education and Saving for Retirement: Why Financial Education is Needed for Retirement Saving." In *Improving Financial Education and Awareness on Insurance and Private Pensions*, 103-114. Paris: OECD Publishing, 2008.
<http://dx.doi.org/10.1787/9789264046399-16-en>.
- O'Grady, K.A. "Tracing the City - Parkour Training, Play and the Practice of Collaborative Learning." *Theatre Dance and Performer Training* 3, no.2, (2012): 145 - 162.
- Ollman, Bertell. "The Theory of Alienation" in *Alienation: Marx's Conception of Man in Capitalist Society: Part III, The Theory of Alienation*. Cambridge: Cambridge University Press, 1971. Accessed from <https://www.nyu.edu/projects/ollman/books/a.php>.
- Olwig, Kenneth. "The 18th Century Garden as a Knowledge-generating Feature." *Erfurt Electronic Studies in English* 4 (2007).
- Olwig, Kenneth. *Landscape, Nature and the Body Politic: from Britain's Renaissance to America's New World*. Madison, WI; University of Wisconsin Press, 2002.
- Olwig, Kenneth. "Recovering the Substantive Nature of Landscape,." *Annals of the Association of American Geographers* 86, no.4. (Dec., 1996) 630-653.
http://webdoc.sub.gwdg.de/edoc/ia/eese/artic27/sommer/4_2007.html.
- Online Etymological Dictionary, s.v. "lot (n.)"
https://www.etymonline.com/search?q=lottery&source=ds_search.
- Ortuzar, Jimena. "Parkour or L'art du Déplacement: A Kinetic Urban Utopia." *The Drama Review* 53, no. 3 (2009): 54-66.
- Osborne, Peter. *The Politics of Time: Modernity and Avant-Garde*. London: Verso, 1995.
- Outreville, J. Francois. *Theory and Practice of Insurance*. New York: Springer Science and Business Media LLC, 1998.
- Pal, Carol. "Accidental Archive: Samuel Hartlib and the Afterlife of Female Scholars." In *Archival Afterlives: Life, Death, and Knowledge-Making in Early Modern Scientific and Medical Archives*, Vol 23, edited by Vera Keller, Anne-Marie Roos, and Elizabeth Yale, 120-149. Leiden, Netherlands: Brill, 2018.
- Pal, Carol. *Republic of Women: Rethinking the Republic of Letters in the Seventeenth Century*, Vol. 99. Cambridge: Cambridge University Press, 2012.
- Palmeri, Franck. *State of Nature, Stages of Society: Enlightenment, Conjectural History and Modern Social Discourse*. New York: Columbia University Press, 2016.

- Palti, Elias, Jose. "Time, Modernity and Time Irreversibility." *Philosophy and Social Criticism* 23, no.5 (1997): 27-62.
- Parker, Christine and John Briathwaite. "Regulation" In *The Oxford Handbook of Legal Studies*, edited by Mark Tushnet and Peter Cane, 120-145. Oxford: Oxford University Press, 2005.
- Parker, Geoffrey and Lesley M. Smith. *The General Crisis of the Seventeenth Century*. London: Routledge, 2005. <https://doi.org/10.4324/9780203992609>.
- Parmalee, Thomas A. *Legalized Gambling*. Minneapolis, MN: ABDO, 2011.
- Parris, Henry. "The Nineteenth Century Revolution in Government: a Reappraisal Reappraised." *Historical Journal*, 3 (1960), 17–37.
- Pastorino, Cesare. "The Philosopher and the Craftsman: Francis Bacon's Notion of Experiment and its Debt to Early Stuart Inventors." *Isis*, 108, no. 4 (2017): 749-768.
- Pearse, Rebecca and Steffen Böhm. "Ten Reasons Why Carbon Markets Will Not Bring About Radical Emissions Reduction." *Carbon Management* 5, no. 4 (2014): 325-337.
- Pearson, Robin. "Fire, Property Insurance and Perceptions of Risk in Eighteenth-Century Britain." In *The Appeal of Insurance*, edited by Geoffrey Clark, Gregory Anderson et al., 75-106. Toronto: University of Toronto, 2010.
- Peck, Linda Levy *Consuming Splendor: Society and Culture in Seventeenth-Century England*. Cambridge: Cambridge University Press, 2005.
- Pedersen, Susan. *Family, Dependence, and the Origins of the Welfare State: Britain and France, 1914-1945*. Cambridge: Cambridge University Press, 1995.
- Pelling, Mark, David Manuel-Navarrete, and M. R. Redclift *Climate Change and the Crisis of Capitalism: a Chance to Reclaim Self, Society and Nature*. Abingdon UK: Routledge, 2012.
- Pels, Dick, Kevin Hetherington, and Frédéric Vandenberghe. "The Status of the Object: Performances, Mediations and Techniques." *Theory Culture and Society* 19, no. 5/6 (2002): 1-21.
- Petty, William. *Political Arithmetick*. London: Robert Clavel, 1691.
- Picard, Andre. "The Complicated Truth about Aspartame." *The Globe and Mail*. Dec. 22, 2013. <https://www.theglobeandmail.com/...complicated-truth...aspartame/article16069158/>.
- Pickering, Michael. "Experience as Horizon: Koselleck, Expectation and Historical Time." *Cultural Studies* 18, no. 2-3 (2004): 271–89.
- Pierson, Christopher. *Beyond the Welfare State? The New Political Economy of Welfare*.

- Cambridge: Polity Press, 2006.
- Pierson, Paul. "The New Politics of the Welfare State." *World Politics* 48, no. 2 (1996): 143-179.
- Piketty, Thomas. *Why Save the Bankers? And Other Essays on our Economic and Political Crisis*, translated by Seth Ackerman. Boston & New York: Houghton, Mifflin, Harcourt, 2016.
- Pimlott, Ben, Dennis Kavanagh and Peter Morris. "Is the 'Postwar Consensus' a Myth?" *Contemporary Record* 2, no.6 (1989): 12-15.
- Pincus, Steve. "From Holy Cause to Economic Interest: The Study of Population and the Invention of the State." In *A Nation Transformed: England after the Restoration*, edited by Alan Houston and Steve Pincus, 272-298. Cambridge: Cambridge University Press, 2001.
- Pincus, Steve. "Rethinking Mercantilism: Political Economy, the British Empire, and the Atlantic World in the Seventeenth and Eighteenth Centuries." *The William and Mary Quarterly* 69, no. 1 (2012): 3-34.
- Pinto, Robert C. and Laura E. Pinto. "The Emotional Life of Reason: Exploring Conceptions of Objectivity." (2016) .OSSA Conference Archive. 85.
<https://scholar.uwindsor.ca/ossaarchive/OSSA11/papersandcommentaries/85>.
- Pischke, G. "The Ebstorf Map: Tradition and Contents of a Medieval Picture of the World." *History of Geo-and Space Sciences* 5, no. 2 (2014): 155-161.
- Poland, M.D., Gregory A. and Robert M. Jacobson, M.D. "The Age-Old Struggle against the Antivaccinationists." *The New England Journal of Medicine* 364, no.2 (Jan. 2011): 97-99. DOI: 10.1056/NEJMp1010594.
- Polanyi, Karl (1944). *The Great Transformation: The Political and Economic Origins of our Time*. Beacon Press, Boston, 2001.
- Poovey, Mary. "Figures of Arithmetic, Figures of Speech: The Discourse of Statistics in the 1830s." *Critical Inquiry*, 19 (Winter, 1993): 256-276.
- Poovey, Mary. *A History of the Modern Fact: Problems of Knowledge in the Sciences of Wealth and Society*. University of Chicago Press, 1998.
- Poovey, Mary. *Making of A Social Body: British Cultural Formation, 1830-1864*. Chicago: The University of Chicago Press, 1995.
- Porter, Camerin M. "Time Measurement and Chronology in Medieval Studies." In *Handbook of Medieval Studies: Terms–Methods–Trends*, edited by Albrecht Classen, 1350-1368. Berlin and New York: Walter de Gruyter GmbH & Co KG, 2010.
- Porter, Roy. *English Society in the Eighteenth Century*. London: Penguin, 1982.

- Porter, Theodore. *Encyclopedia Britannica Online*, s.v. "Probability and Statistics." <https://www.britannica.com/science/probability>.
- Porter, Theodore. "Introduction: The Statistical Office as a Social Observatory." *Centaurus*, 49 (2007): 258-260.
- Porter, Theodore. "The Rise of Statistics." *Encyclopedia Britannica*, <https://www.britannica.com/topic/probability/The-rise-of-statistics>.
- Porter, Theodore M. *The Rise of Statistical Thinking, 1820-1900*. Princeton, NJ.: Princeton University Press, 1986.
- Porter, Theodore M. *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life*. Princeton, N.J: Princeton University Press, 1996.
- Porter, Tony. "Risk Models and Transnational Governance in the Global Financial Crisis: The Cases of Basel II and Credit Rating Agencies." In *Global Finance in Crisis*, edited by Erik Helleiner, Stefano Pagliari, and Hubert Zimmermann, 70-87. London: Routledge, 2010.
- Pottage, Alain. "The Measure of Land." *Modern Law Review* 57, no.3 (January, 2011): 361-384.
- Power, Michael. *The Risk Management of Everything: Rethinking the Politics of Uncertainty*. London: Demos, 2004.
- Purdy, Jedediah. *The Meaning of Property: Freedom, Community, and the Legal Imagination*. New Haven: Yale University Press, 2010.
- Quinn, Stephen. "Money, Finance and Capital Markets." In *The Cambridge Economic History of Modern Britain*, Volume I, edited by Floud and Johnson, 147-74. Cambridge: Cambridge University Press, 2004.
- Radin, Margaret J. *Reinterpreting Property*. Chicago and London: University of Chicago Press, 1993.
- Rahe, Paul A. *Republics Ancient and Modern, Volume II: New Modes and Orders in Early Modern Political Thought*. Chapel Hill, NC: UNC Press Books, 2017.
- Ramadan, Adam. "Spatialising the Refugee Camp." *Transactions of the Institute of British Geographers* 38, no. 1 (2013): 65-77.
- Rasch, William W. *Nicholas Luhman's Modernity: Paradoxes of Differentiation*, (California: Stanford University Press, 2000.
- Rathbourne, Aaron. *The Surveyor: In Four Bookes*. London: W. Standsby, 1616 https://books.google.ca/books/about/The_Surveyor_in_Foure_Bookes_by_Aaron_Ra.html?id=KIM4cgAACAAJ&redir_esc=y.

- Recorde, Robert. *The Pathway to Knowledg [sic], Containing the First Principles of Geometrie* [1551], Amsterdam: Theatrum Orbis Terrarum, 1974.
- Rees, Graham. *The Oxford Francis Bacon, Volume XI: The Instauration Magna: Part II. Novum Organum*. Edited by Graham Rees and Maria Wakely. Oxford: Oxford University Press, 2004.
- Reginster, Bernard. "Art and Affirmation." In *Nietzsche on Art and Life*, ed. Daniel Came, 14-38. Oxford: Oxford University Press, 2014.
- Reid Jr, Charles J. "The Seventeenth Century Revolution in Land Law." *Cleveland State Law Review* 43, no.2 (1995): 221-302.
<http://engagedscholarship.csuohio.edu/clevstlrev/vol43/iss2/4>.
- Rein, Martin and Lee Rainwater, eds. *Public/Private Interplay in Social Protection: A Comparative Study*. Armonk, NY: M. E. Sharpe, 1986.
- Reiss, Timothy J. *The Discourse of Modernism*. Ithaca, NY: Cornell University Press, 1982.
- Reith, Gerda. "Consumption and its Discontents: Addiction, Identity and the Problems of Freedom." *The British Journal of Sociology* 55, no. 2 (2004) 283-300.
- Reith, Gerda. "Uncertain Times: the Notion of 'Risk,' and the Development of Modernity." *Time & Society* 13, no. 2/3 (2004), 384.
- Relin, David Oliver. "The Census in History." *Scholastic Update* 122, no. 9 (1990): 11-12.
- Renn, Ortwin. *Risk Governance: Coping with Uncertainty in a Complex World*. London; Sterling, VA: Earthscan, 2008.
- Rennie, Kriston R. *Medieval Canon Law*. Leeds, UK: Arc Humanities Press, 2018.
- Report of the Committee of Ways and Means, of the House of Commons. *HC Deb 18 May 1809 vol 14 cc620-5* 620. House of Commons Hansard Archives: UK Parliament.
[http://www.hansardarchive.parliament.uk/Parliamentary_Debates_Vol_1_\(1803\)_to_Vol_41_\(Feb_1820\)](http://www.hansardarchive.parliament.uk/Parliamentary_Debates_Vol_1_(1803)_to_Vol_41_(Feb_1820)).
- Resnik, Judith and Dennis E. Curtis. "Images of Justice." *The Yale Law Journal*, 96 (1987): 1727-1772.
- The Revised Standard Bible Containing the Old and New Testaments*, edited by Herbert G. May and Bruce M. Metzger. New York: Oxford UP, 1962.
- Reyes, Oscar. "EU Emissions Trading System: Failing at the Third Attempt." Carbon Trade Watch and Corporate Europe Observatory, 2011.
- Ricœur, Paul. *Memory, History, Forgetting*. Translated by Kathleen Blamey and David Pellauer. Chicago: University of Chicago Press, 2004.

- Roach Anleu, Sharyn L. "The Role of Civil Sanctions in Social Control: a Socio-legal Examination." *Crime Prevention Studies*, 9 (1998) 21-43.
- Roberts, David. *Victorian Origins of the British Welfare State*. New Haven, CT: Yale University Press, 1960.
- Robertson, Neil. "Introduction: Descartes and the Modern." In *Descartes and the Modern*, edited by Neil Robertson, Gordon McOuat and Tom Vinci, 1-15. Cambridge: Cambridge Scholars' Publishing, 2008.
- Robinson, Ian. *The Papal Reform of the Eleventh Century: the Lives of Pope Leo IX and Pope Gregory VII*. Manchester: Manchester University Press, 2004.
- Rogan, Tim. *The Moral Economists: R. H. Tawney, Karl Polanyi, E. P. Thompson, and the Critique of Capitalism*. Princeton: Princeton University Press, 2017.
- Rogers, Pat. "Dividing Lines: Surveyors and the Crossing of the Colonies." *Lumen*, 31 (2012): 41–64. [https:// doi.org/10.7202/1013066ar](https://doi.org/10.7202/1013066ar).
- Rose, Carol M. "Crystals and Mud in Property Law." *Stanford Law Review*, 40 (1988): 577-610.
- Rose, Carol M. *Property and Persuasion: Essays on the History, Theory, and Rhetoric of Ownership*. Boulder, Colorado: Westview Press, 1994.
- Rose, Nikolas. "Governing 'Advanced' Liberal Democracies." In *The Anthropology of the State: A Reader*, edited by Aradhana Sharma and Akhil Gupta, 144-162. Oxford: Blackwell, 2006.
- Rose, Nikolas and Peter Miller. *Governing the Present: Administering Economic, Social and Personal Life*. Cambridge: Polity Press, 2008.
- Rose, Nikolas and Peter Miller. "Political Power beyond the State: Problematics of Governmentality." *The British Journal of Sociology* 43, no. 2 (1992): 173-205.
- Rose, Nicholas. *Powers of Freedom: Reframing Political Thought*. Cambridge: Cambridge University Press, 1999.
- Rosenhaft, Eve. "How to Tame Chance: Evolving Languages of Risk, Trust, and Expertise in Eighteenth-Century German Proto-Insurances." In *The Appeal of Insurance*, edited by Geoffrey Clark, Gregory Anderson et al. Toronto: University of Toronto, 2010.
- Rosenhaft, Eve. "Review of Gregory Clark's *Betting on Lives: the Culture of Life Insurance in England, 1695-1775*," *Reviews in History*, 131 (July, 2000). <https://reviews.history.ac.uk/review/131>.
- Rostow, W. W. (1960). *The Stages of Economic Growth: A Non-Communist Manifesto*, (Cambridge: Cambridge University Press, 1960).

- Rothstein, Henry, Michael Huber, and George Gaskell. "A Theory of Risk Colonisation: The Spiralling Regulatory Logics of Societal and Institutional Risk." *Economy and Society* 35, no.1 (February 2006): 91-112.
- Rowell, David and Luke B. Connelly. "A History of the Term "Moral Hazard." *The Journal of Risk and Insurance* 79, no. 4 (December 2012), 1051-1075.
- The Royal Society, "History of the Royal Society," <https://royalsociety.org/about-us/history/>.
- Rudra, Nita. "Welfare States in Developing Countries: Unique or Universal?" *The Journal of Politics* 69, no. 2 (May 2007): 378–396.
- Rueda, David. "Unemployment, Labor Market Policy, and Inequality in the Age of Workfare." *Comparative Politics* 47, no. 3 (2015): 296-314, 300.
- Russell, Josiah C. "Population in Europe 500-1500." In *The Fontana Economic History of Europe, Vol. I: The Middle Ages*, edited by Carlo M. Cipolla. Glasgow: Collins/Fontana, 1972.
- Said, Edward. *Culture and Imperialism*. New York: Vintage, 1993.
- Said, Edward. *Orientalism*. London: Routledge, 1978.
- Saler, Michael. "Modernity and Enchantment: a Historiographic Review." *American Historical Review* 111, no. 3 (2006): 692-716.
- Saliba, George. *Islamic Science and the Making of the European Renaissance*. Cambridge, MA: MIT Press, 2007.
- Sandel, Michael J. *What Money Can't Buy: the Moral Limits of Markets*. New York: Farrar, Straus and Giroux, 2013.
- Santos Castro, Juan Samuel. "Hume and Conjectural History." *Journal of Scottish Philosophy* 15, no. 2 (2017): 157-174.
- Sartre, Jean-Paul. *Being and Nothingness*. London and New York: Routledge, 2003.
- Sassen, Saskia. *Territory, Authority, Rights: From Medieval to Global Assemblages*. Princeton, NJ: Princeton University Press 2008.
- Saxton, Christopher. *Atlas of England and Wales*. London: Christopher Saxton, 1579.
- Sayer, Derek. *Capitalism and Modernity: An Excursus on Marx and Weber*. London and New York: Routledge, 1991.
- Sayer, Derek. *The Violence of Abstraction: The Analytical Foundations of Historical Materialism*. Oxford: Basil Blackwell, 1987.

- Scattergood, Amy. "In the Dirt with Ron Finlay 'the Gangsta Gardener.'" *latimes.com*, May 19, 2017. <https://www.latimes.com/food/dailydish/la-fo-ron-finley-project-20170503-story.html>.
- Schechter, Darrow. *The Critique of Instrumental Reason from Weber to Habermas*. New York: Bloomsbury Publishing, 2010.
- Schiller, Friedrich. *On the Aesthetic Education of Man*. Translated and introduced by Reginald Schnell. Dover publications: New York, 2004.
- Schinkel, Anders. "Imagination as a Category of History: An Essay Concerning Koselleck's Concepts of Erfahrungsraum and Erwartungshorizont." *History and Theory* 44, no.1 (2005): 42–54.
- Schwartz, David. *Roll the Bones: the History of Gambling*. New York: Gotham Books, 2006.
- Schwartzstein, Peter. "Climate Change and Water Woes Drove Isis Recruiting in Iraq." *National Geographic*. Nov. 14, 2017. <https://news.nationalgeographic.com/2017/11/climate-change-drought-drove-isis-terrorist-recruiting-iraq/>.
- Scott, Jonathan. "From English to British liberty, 1550–1800." *European Review of History*: 21 no.1 (2014): 59-72.
- Scott-Luckens, Carola. "Providence, Earth's 'Treasury' and the Common Weal: Baconianism and Metaphysics in Millenarian Utopian Texts 1641–55." In *The Arts of 17th-Century Science: Representations of the Natural World in European and North American Culture*, edited by Claire Jowitt and Diane Watt, 123-138. London: Ashgate, 2002.
- Scrope, George Poulett (1833). *Principles of Political Economy, Deduced from the Natural Laws of Social Welfare and Applied to the Present State of Britain* (New York: A.M. Kelley, 1969).
- Seidlmayer, Michael. *Currents of Medieval Thought*. Translated by D. Barker. Oxford, Oxford University Press, 1960.
- Sen, Sambudha. "From Dispossession to Dissection: The Bare Life of the English Pauper in the Age of the Anatomy Act and the New Poor Law." *Victorian Studies* 59, no. 2, (Winter 2017) 235-259.
- Serjeantson, Richard. "Francis Bacon and the 'Interpretation of Nature' in the Late Renaissance." *Isis* 105, no. 4 (2014): 681-705.
- Sessions, W. A., ed. *Francis Bacon's Legacy of Texts*. New York: AMS Press, 1990.
- Shannon, Bill. "Approvement and Improvement in the Lowland Wastes of Early Modern Lancashire." In *Custom, Improvement and the Landscape in Early Modern Britain*, edited by Richard, W. Hoyle, 185-212. Farnham: Ashgate, 2011.

- Shapin, Steven. *A Social History of Truth: Civility and Science in Seventeenth-Century England*. Chicago: University of Chicago Press, 2011.
- Shapiro, Barbara J. *A Culture of Fact: England, 1550-1720*. Ithaca, NY: Cornell University Press, 2000.
- Shaver, Andrew. "You're more likely to be fatally crushed by furniture than killed by a terrorist." *The Washington Post*. Nov. 23, 2015.
http://www.washingtonpost.com/news/monkey-cage/wp/2015/11/23/youre-more-likely-to-be-crushed-fatally-by-furniture-than-killed-by-a-terrorist/?utm_term=.ed763404a91c.
- Shepard, Alexandria. "Poverty, Labour and the Language of Social Description in Early Modern England." *Past and Present* 201, no. 1 (2008): 51- 95.
- Short, John Rennie. *Making Space: Revisioning the World, 1475-1600*. Syracuse: Syracuse UP, 2004.
- Shorter, Edward, ed. *The Historical Dictionary of Psychiatry*. Oxford: Oxford UP, 2005.
- Sim, Stuart. *The Routledge Companion to Postmodernism*. London: Routledge, 2013.
- Simon, Jonathan. "Risk and Reflexivity: What Socio-legal Studies add to the Study of Risk and the Law." *Alabama Law Review*, 57 (2005): 119-139.
- Simon, Stacey. "Cancer Facts and Figures: Death Rate down 25% since 1991" *American Cancer Society*. Jan. 25, 2017. <https://www.cancer.org/latest-news/cancer-facts-and-figures-death-rate-down-25-since-1991.html>.
- Simonds, Roger T. "Bacon's Legal Learning: its Influence on His Philosophical Ideas." In *Acta Conventus Neo-Latini Sanctandreami, Proceedings of the Fifth International Congress of Neo-Latin Studies*. Edited by D. McFarlane. Binghamton, NY: Center for Medieval and Early Renaissance Studies, 1986.
- Skerry, Peter. *Counting on the Census? Race, Group Identity, and the Evasion of Politics*, Volume 56. Washington D.C.: Brookings Institution Press, 2000.
- Skocpol, Theda. *Protecting Soldiers and Mothers: The Political Origins of Social Policy in the United States*. Cambridge, MA: Harvard University Press, 1992.
- Slack, Paul. *The English Poor Law*. Cambridge: Cambridge University Press, 1990.
- Slack, Paul. *From Reformation to Improvement; Public Welfare in Early Modern England*. Oxford: Oxford University Press, 1999.
- Slack, Paul. *The Invention of Improvement: Information and Material Progress in Seventeenth Century England*. Oxford: Oxford UP, 2015.

- Slack, Paul. "Measuring the National Wealth in Seventeenth Century England," *Economic History Review* 57, no.4 (2004): 607-635.
- Slack, Paul. *Rebellion, Popular Protest and the Social Order in Early Modern England*. Cambridge: Cambridge University Press, 1984.
- Smith, Adam (1776). *The Nature and Causes of the Wealth of Nations*. Edited by Edwin Cannan, with a Preface by George J. Stigler. Chicago, Chicago University Press, 1977.
- Smith, D. K. *The Cartographic Imagination in Early Modern England: Re-writing the World Re-Writing the World in Marlowe, Spenser, Raleigh and Marvell*. Aldershot: Ashgate Publishing, 2008.
- Smith, Kevin. *The Carbon Neutral Myth: Offset Indulgences for Your Climate Sins*. Amsterdam: Transnational Institute, 2005.
- Soguk, Nevzat. *States and Strangers: Refugees and Displacements of Statecraft, Vol.11*. Minneapolis: University of Minnesota Press, 1999.
- Soja, E.W. *Postmodern Geographies: The Reassertion of Space in Critical Social Theory*. London: Verso, 1989.
- Srnicek, Nick. "Abstraction and Value: The Medieval Origins of Financial Quantification," *Speculative Medievalisms: Discography*, edited by Eileen, A. Joy, Anna Klosowska, Nicola Masciandro and Michael O'Rourke, 74-91. Brooklyn, N.Y.: Punctum Books, 2013.
- Staib, Daniel and Mahesh H Puttaiah. "World Insurance in 2017: Solid but Mature Life Markets Weigh on Growth." *Sigma*, 3 (July, 2018).
<https://www.swissre.com/institute/research/sigma-research/sigma-2018-03.html>.
- Stansky, P., ed. *The Victorian Revolution: Government and Society in Victoria's Britain*. New Viewpoints: New York, 1973.
- Stapleton, Jane. "Tort Insurance and Ideology." *Modern Law Review* 58 (1995): 820-845.
- Statistical Society of Bristol, in *Proceedings of Statistical Societies Source: Journal of the Statistical Society of London*, Vol. 1, No. 9 (Jan., 1839): 546-554 (Published by: Wiley for the Royal Statistical Society), <http://www.jstor.org/stable/233808>.
- Statistics Canada. "The Daily-National Balance Sheet and Financial Flow Accounts Third Quarter" *statscan.com*, Friday, Dec. 14, 2018.
<https://www150.statscan.gc.ca/n1/daily/quotidien/181214/dq181214-eng.html>.
- Steele, Jenny. "Tort, Insurance and the Resources of Private Law." In *Torts in Commercial Law*, edited by S. Degeling, J. Edelman and J. Goudkamp, 195-220. Sydney: Thomson Reuters, 2011.

- Stein, Ringen. *The Possibility of Politics: A Study in the Political Economy of the Welfare State*. Abingdon, UK; Routledge, 2017.
- Stiefmueller, Christian M. *Ten Years After: Back to Business as Usual, Finance Watch*. Finance Watch, 2018. <https://www.finance-watch.org/wp-content/uploads/2018/09/10YA-FW-report.pdf>.
- Stigler, Stephen M. *The History of Statistics: The Measurement of Uncertainty before 1900*. Cambridge, MA: Harvard University Press, 1986.
- Stiglitz, Joseph. *Freefall: America, Free markets, and the Sinking of the World Economy*. New York, NY: WW Norton & Company, 2010.
- Stiglitz, Joseph. *Globalization and Its Discontents*. New York: W.W. Norton & Co., 2002.
- Stoler, Ann Laura. *Race and the Education of Desire: Foucault's "History of Sexuality" and the Colonial Order of Things*. Durham, N.C.: Duke University Press, 1995.
- Stolleis, Michael. *The Eye of the Law: Two Essays on Legal History*, translated by Thomas Dunlap. Abingdon: Birkbeck Law Press, 2009.
- Stone, Lawrence. "Social Mobility in England, 1500-1700." *Past and Present*, 33 (1966): 16-55.
- Streeck, Wolfgang. *How Will Capitalism End: Essays on a Failing System*. London: Verso, 2017.
- Sueter, S.R.S. "The Genesis of the Registrar-General's Social Classification of Occupations." *The British Journal of Sociology* 35 (1986): 522-45.
- Sunstein, Cass R. "Misfearing: a Reply" *Harvard Law Review*, 119 (2005): 1110
- Sunstein, Cass R. *The Laws of Fear: Beyond the Precautionary Principle*. Cambridge and NY: Cambridge University Press, 2005.
- Swiss Re Institute, *Sigma*, 3 (2017), <http://www.sigma-explorer.com/>.
- "The Results of the Census in 1851." *The Westminster and Foreign Quarterly Review*, 61 (April, 1854). <https://books.google.ca/books?id=DXkVAQAIAAJ>, 344.
- Talesh, Shauhin. "A New Institutional Theory of Insurance." *University of California Irvine Law Review* 5, no.3 (2015): 617-650.
- Tang, Chenxi. *The Geographical Imagination of Modernity: Geography, Literature and Philosophy in German Romanticism*. Redwood City: Stanford University Press, 2008.
- Tarlow, Sarah. *The Archaeology of Improvement in Britain, 1750-1850*. Cambridge: Cambridge University Press, 2007.
- Taun, Yi-Fu. "Foreword." In *Landscape, Nature and the Body Politic: from Britain's Renaissance to America's New World*, edited by Kenneth Olwig. Madison, WI; University of Wisconsin

- Press, 2002.
- Taylor, A. J. "Taking of the Census, 1801-1951." *British Medical Journal* 1, no. 4709 (1951): 715.
- Taylor, Charles. *Sources of the Self: The Making of Modern Identity*. Cambridge, MA: Harvard University Press, 1989.
- Taylor, Ruth E. "Death of Neurasthenia and its Psychological Reincarnation: A Study of Neurasthenia at the National Hospital for the Relief and Cure of the Paralysed and Epileptic, Queen Square, London, 1870-1932." *The British Journal of Psychiatry* 179, no. 6 (2001): 550-557.
- Taylor-Gooby, Peter. "Risk Governance and Public Trust." 2018.
<https://www.kent.ac.uk/scarr/events/beijingAb/TaylorGooby>.
- Than, Pat. *The Foundations of the Welfare State*. Abingdon, UK: Routledge, 2016.
- Thirsk, Joan. "The Crown as Projector on its own Estates, from Elizabeth 1 to Charles 1." In *The Estates of the English Crown: 1558-1640*, edited by R. W. Hoyle, 297-352. Cambridge: Cambridge University Press 1992.
- Thirsk, Joan. "Enclosing and Engrossing." In *The Agrarian History of England and Wales: 1500-1640, Vol. 4*, edited by Joan Thirsk and H.P.R. Finberg. Cambridge: Cambridge University Press, 1967.
- Thomas, Chantal. "Re-Reading Weber in Law and Development: A Critical Intellectual History of 'Good Governance' Reform." *Cornell Law Faculty Publications*, 118 (2008): 1-115.
http://scholarship.law.cornell.edu/lrsp_papers/118.
- Thompson, E.P. *Customs in Common: Studies in Traditional Popular Culture*. New York: The New Press, 1991.
- Thompson, E.P. *The Making of the English Working Class*. London, Penguin 1991.
- Thompson, S.J. "Parliamentary Enclosure, Property, Population, and the Decline of Classical Republicanism in Eighteenth-Century Britain." *The Historical Journal* 51, no. 3 (2008): 621-642.
- Thunberg, Greta. "Speech at UN Climate Change COP24 conference in Katowice, Poland." December 13, 2018. Transcript accessed at
https://www.democracynow.org/2018/12/13/you_are_stealing_our_future_greta.
- Titmuss, Richard. *Social Policy: An Introduction*, edited by Abel-Smith Brian and Titmuss Kay. Allen and Unwin, London, 1974.
- Toumi, Ralf and Lauren Restell, (Lloyds). "Catastrophe Modelling and Climate Change." *Climate Signals*. Jan. 1, 2014. <https://www.climatesignals.org/scientific-reports/catastrophe-modelling-and-climate-change>.

- Toumlin, Stephen. *Cosmopolis: the Hidden Agenda of Modernity*. Chicago: University of Chicago Press, 1992.
- Trepanier, Lee & Khalil M. Habib, eds. *Cosmopolitanism in the Age of Globalization: Citizens without States*. Lexington, KY: University Press of Kentucky, 2011.
- Trevor-Roper, Hugh R. "The General Crisis of the 17th Century." *Past & Present* 16 (1959).
- Trevor-Roper, Hugh. "Three Foreigners: the Philosophers of the Puritan Revolution," In *Religion, Reformation and Social Change*, edited by Hugh Trevor-Roper, 237-93. London, McMillan, 1967.
- Trinkaus, Charles. *In Our Image and Likeness: Humanity and Divinity in Italian Humanist Thought*. Notre Dame, Indiana: University of Notre Dame Press, 1995.
- Trouillot, Michel-Rolph. *Silencing the Past: Power and the Production of History*. Boston: Beacon Press, 1995.
- Trowbridge, Charles L. *Fundamental Concepts in Actuarial Science*. Actuarial Education & Research Fund, 1989.
- Tuan, Yi-Fu. *Space and Place: The Perspective of Experience*. Minneapolis: University of Minnesota Press, 1977.
- Tully, James. "Rediscovering America: The Two Treatises and Aboriginal Rights." In *Locke's Philosophy: Content and Context*, edited by G.A.J. Rogers. Oxford: Clarendon Press, 1994.
- Turnbull, G. H. *Hartlib, Dury and Comenius. Gleanings from Hartlib's Papers*. Liverpool: University of Liverpool, 1947.
- Turner, Bryan S. *Max Weber: From History to Modernity*. London & New York: Routledge, 1993.
- Turner, Bryan S. *Theories of Modernity and Postmodernity*. London, Sage, 1990.
- Umlauf, T.S. "The Paradoxical Genesis of Too-Big-to-Fail." *Journal of Governance and Regulation* 3, no.1, (2014): 28-41. http://doi.org/10.22495/jgr_v3_i1_p2.
- UN General Assembly. "Universal Declaration of Human Rights." Articles 22 and 25. Paris, UN, 1948. <http://www.un.org/en/universal-declaration-human-rights/> (accessed September 6, 2018).
- United Nations. "The End of the Golden Age, the Debt Crisis and Development Setbacks." In *World Economic and Social Survey 2017, Reflecting on Seventy Years of Development Policy Analysis*, 49-72. New York: United Nations, 2017. <https://doi.org/10.18356/8310f38c-en>.

- Urton, Gary. *The State of Strings: Khipu Administration in the Inka Empire*. Austin: University of Texas Press, 2015.
- Van der Zwan, Natascha. "Making Sense of Financialization." *Socio-Economic Review* 12, no. 1, (January 2014): 99–129, <https://doi.org/10.1093/ser/mwt020>.
- Van der Veen, Romke. "Risk and the Welfare State: Risk, Risk Perception and Solidarity." In *The Transformation of Solidarity: Changing Risks and the Future of the Welfare State*, edited by Romke van der Veen, Mara Yerkes, and Peter Achterberg. Amsterdam University Press, Amsterdam 2012.
- Van Lierop, Wal. "A Methadone Plan for the World's Hydrocarbon Addiction." *forbes.com*, November 26, 2018. <http://www.forbes.com/sites/walvanlierop/>.
- Varoufakis, Yanis et al., "ten years after the crash: have the lessons of Lehman been learned?" *theguardian.com*, September 14, 2018. <https://www.theguardian.com/commentisfree/2018/sep/14/the-panel-lehman-brothers-ten-year-anniversary-financial-crash>.
- Veghte, Benjamin W. "Welfare State," *International Encyclopedia of the Social Sciences*, Encyclopedia.com. 3 Feb. 2018. <http://www.encyclopedia.com>.
- Vernon, James. "The Ethics of Hunger and the Assembly of Society: The Techno- Politics of the School Meal in Modern Britain." *The American Historical Review* 110, no. 3 (2005): 693-725.
- Vernon, James. *Distant Strangers: How Britain Became Modern, Vol. 9*. California: University of California Press, 2014.
- Wagner, Peter. *A Sociology of Modernity: Liberty and Discipline*. London: Routledge, 2002.
- Walker, Rob B.J. *Inside/Outside: International Relations as Political Theory*. Cambridge: Cambridge UP, 1993.
- Wallerstein, Immanuel. *The Modern World-System I: Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century*, Vol. 1. Oakland, CA: University of California Press, 2011.
- Walter, John and Keith Wrightson. "Dearth and the Social Order in Early Modern England." *Past and Present*, no. 71, (1976): 22-42.
- Wennerlind, Carl. *Casualties of Credit: The English Financial Revolution, 1620-1720*. Cambridge MA: Harvard University Press, 2011.
- Warde, Paul. "The Idea of Improvement: c.1520-1700." In *Custom, Improvement and the Landscape in Early Modern Britain*, edited by Richard Hoyle. London: Ashgate, 2011.
- Weber, Max. "Characteristics of Modern Bureaucracy." In *Economy and Society: An Outline of Interpretive Sociology*. Berkeley: University of California Press, 1978.

- Weber, Max (1922). *Economy and Society: An Outline of Interpretive Sociology*. Oakland, CA: University of California Press, 1978.
- Weber, Max. *Law in Economy and Society*. Cambridge, MA: Harvard University Press, 1954.
- Weber, Max. "Objectivity in Social Science and Social Policy." In *The Methodology of the Social Sciences*, edited and translated by E. Shils and H. A. Finch. New York: Free Press, 1949.
- Weber, Max *The Protestant Ethic and the Spirit of Capitalism*, translated by Talcott Parsons. London: G. Allen & Unwin, Ltd., 1930.
- Weber, Max, "Science as a Vocation." In *Max Weber: Essays in Sociology*, edited by H.H Gerth and C. Wright Mills, preface by Bryan S. Turner, 1991. London: Routledge, 1998
- Webster, Charles. *Samuel Hartlib and the Advancement of Learning*. Cambridge: Cambridge University Press, 1970.
- Webster, Tom. "The Changing Landscape." In *The Oxford Illustrated History of Tudor & Stuart Britain*. Oxford: Oxford University Press, 1996.
- Wedell, Moritz. "Numbers." In *The Handbook of Medieval Culture Vol. 3*, edited by Albrecht Classen, translated by Erik Born, 1205-1260. Berlin & New York: Walter de Gruyter GmbH & Co KG, 2015.
- Wellmon, Chad. "Goethe's Morphology of Knowledge, or the Overgrowth of Nomenclature." *Goethe Yearbook* 17, no. 1 (2010): 153-177.
- Wells, Jennifer. "Springtime is Here and Debt is Blooming." *thestar.com*, March 13, 2018. <https://www.thestar.com/business/opinion/2018/03/13/springtime-is-here-and-debt-is-blooming.html>.
- Wertheim, Margaret. *The Pearly Gates of Cyberspace: a History of Space from Dante to the Internet*. New York: W.W. Norton & Co, 2000.
- Wertz, Jr, William F. "A Reader's Guide to Letters on the Aesthetical." *Fidelio*, 14, no.1-2 (2005): 80-104; http://schillerinstitute.org/fidelio_archive/2005/fidv14n01-02-2005SpSu/index.html. Accessed January 2019.
- Westman, Robert. "The Copernicans and the Churches." In *God and Nature: Historical Essays on the Encounter between Christianity and Science*, edited by David Lindberg and Ronald Numbers, 76-113. California: University of California, 1986.
- Wheeler, Harvey. "The Invention of Modern Empiricism: Juridical Foundations of Francis Bacon's Philosophy of Science." *Law Library Journal*, 76 (1983): 78-120.
- White, Hayden. *Tropics of Discourse: Essays in Cultural Criticism*. Baltimore, Md.: Johns Hopkins University Press, 1978.

- White, Lynn Jr. "Death and the Devil." In *The Darker Vision of the Renaissance: Beyond the Fields of Reason*, edited by Robert S. Kinsman, 25-46. Berkeley and Los Angeles: University of California Press, 1974.
- Whiteside, Noel. "The Beveridge Report and its Implementation: a Revolutionary Project?" *Histoire@Politique*, 24 (2014): 1-13.
- Whiteside, Noel. "Social Insurance in Britain 1900-1950: Frameworks of the Welfare State." *La Previsión Social en la Historia* (2009): 519-553.
- Whitrow, G. J. *Time in History: The Evolution of Our General Awareness of Time and Temporal Perspective*. New York: Oxford University Press, 1988.
- Whittle, Jane. "Lords and Tenants in Kett's Rebellion 1549." *Past & Present* 207, no.1 (2010): 3-52.
- Wickham, Chris. *Medieval Europe*. New Haven, CT: Yale University Press, 2016.
- Widerquist, Karl. "Lockean Theories of Property: Justifications for Unilateral Appropriation." *Public Reason* 2, no. 1 (2010): 3-26.
- Wilkinson, Alec. "No Obstacles: Navigating the World by Leaps and Bounds." *newyorker.com*, April 9, 2007. <https://www.newyorker.com/magazine/2007/04/16/no-obstacles>.
- Williams, Raymond. "Ideas of Nature," in *Problems in Materialism and Culture: Selected Essays*. London: New. Left Books, 1980.
- Williams, Raymond. *The Country and the City*. Oxford: Oxford University Press, 1975.
- Winner, Langdon. "Do Artifacts Have Politics?" *Daedalus* 109, no. 1 (1980): 121-136.
- Wolfenstein, Gabriel K. "Recounting the Nation: The General Register Office and Victorian Bureaucracies." *Centaurus* 49, no. 4 (Nov. 2007): 261-288.
- Wolloch, Nathaniel. *History and Nature in the Enlightenment: Praise of the Mastery of Nature in Eighteenth Century Historical Literature*. London: Ashgate, 2011.
- Wood, Andy. "Kett's Rebellion in Norwich." In *The History of Norwich*, edited by C. Rawcliffe and R.G. Wilson, 277-300. Hambledon: London, 2004.
- Wood, Andy. *The Memory of the People: Custom and Popular Senses of the Past in Early Modern England*. Cambridge, NY: Cambridge University Press, 2013.
- Wood, Andy. *Riot, Rebellion and Popular Politics in Early Modern England*. London: Palgrave, 2002.
- Wood, Ellen Meiksins. *The Origin of Capitalism: A Longer View*. London: Verso, 2003.

- Woodward, David. "Cartography in the Renaissance: Continuity and Change." In *History of Cartography, Vol.3, Part 1*, edited by David Woodward, 3-24. Chicago: Chicago University Press, 2007.
- Woolf, Stuart. "Statistics and the Modern State." *Comparative Studies in Society and History* 31, no. 3 (1989): 588-604.
- Wrightson, Keith. *Earthly Necessities: Economic Lives in Early Modern Britain*. New Haven and London: Yale University Press, 2000.
- Young, J.T. *Faith, Alchemy and Natural Philosophy: Johann Moriaen, Reformed Intelligencer, and the Hartlib Circle*. London: Routledge, 1998.
- Yamamoto, Koji. "Reformation and the Distrust of the Projector in the Hartlib Circle." *The Historical Journal* 55, 2 (2012): 375-397.
- Zinn, Jens Oliver. "The Sociology of Risk and Uncertainty – Current State and Perspectives." In *The Routledge Handbook of Risk Studies*, edited by Adam Burgess, Alberto Alemanno, and Jens Zinn, 1-14. London: Routledge, 2016.
- Zagorin, Perez. *Court, Country, and Culture: Essays on Early Modern British History in Honor of Perez Zagorin*. Woodbridge, UK: Boydell & Brewer, 1992.
- Zelizer, Viviana A. *Pricing the Priceless Child: the Changing Social Value of Children*. Princeton, NJ: Princeton University Press, 1985.
- Zinn, Jens O. *Social Theories of Risk and Uncertainty: An Introduction*. Malden MA: Blackwell Publishers, 2008.