

STEAM-POWERED RHETORIC

By

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Chelsea Margaret Acunis Graham

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Chairperson Dave Tell, PhD

Jay Childers, PhD

Scott Harris, PhD

Brett Bricker, PhD

Laura Mielke, PhD

Date Defended: September 2, 2016

The Dissertation Committee for Chelsea Margaret Acunis Graham
certifies that this is the approved version of the following dissertation:

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Chairperson Dave Tell

Date approved: September 5, 2016

Abstract

This dissertation examines the complex and multifaceted life of steam in the context of nineteenth-century America. During this time, steam was a ubiquitous presence in public life. Steam powered the transcontinental railroad, made possible large-scale manufacturing and industrial production, and powered technological progress that defined the late-nineteenth century in America. Steam was also a natural resource, evidencing hydrothermal features in the nation's first National Park at Yellowstone, and the potential of nature's bounty and power. Given that steam existed in both natural and cultural contexts, I contend that steam must be treated as what Bruno Latour calls a quasi-object, something simultaneously natural and cultural, whose circulation and stabilization is made possible by rhetorical practices. By tracing rhetoric about steam, I index the numerous contexts in which it was made salient as either natural or cultural, and illustrate the implications of that salience for various aspects of public life in the late-nineteenth century: technological progress, the establishment of Yellowstone National Park, the completion of the transcontinental railroad, and fraught relationships with Native Americans. To trace steam in each of these contexts is to illuminate its rhetorical vibrancy, but also to illustrate its role in contributing to the establishment of ontological relationships between nature and culture, subject and object. To problematize the stability of steam, then, is to problematize the stability of these relationships; a project I contend is vital in considering our contemporary relationship to the environment in a moment of ecological crisis.

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Chapter I: Strange Steam

In 1878, Engineering Professor Robert Thurston claimed the steam engine was primarily responsible for all the “wonderful progress” of the nineteenth century.¹ Without question, steam was an important and ubiquitous presence in nineteenth-century America, and was a key actor in many of the nation’s most significant developments and achievements.² Steam powered the transcontinental railroad, perhaps one of the most transformative transportation revolutions in human history. It enabled the rise of industrial capitalism, fundamentally changed the American workforce, and encouraged the rapid migration of people not only to manufacturing metropolises in the east, but to new and uncharted territories in the west. Steam modernized factories by relieving manufacturing of its dependence on animal labor or stationary resources such as rivers and waterfalls. This allowed factories to move into cities where steam could be produced by automated processes that increased not only the speed and efficiency of production, but the uniformity and quality that came to define goods fabricated in the United States. When affixed to a carriage, steam-powered engines moved the products produced by the steam-powered factories alongside passengers to new markets both home and abroad. As the century progressed and the borders of the nation shifted to accommodate the expanding territory, steam was a central driver in this process. Indeed, as the borders of the nation shifted with the intent to exclude, relocate, or exterminate countless Native Americans, the location of railroad tracks justified where the reservation boundaries were located. For white Americans, the steam engine represented something that marked their civilized superiority over the “savage” Native—and Native hostility towards railroad workers and white settlers served as evidence of their presumed inferiority, justifying their slaughter and relocation away from the advancing tides of civilization. Just as

steam was powering the engine of the Industrial Revolution, it also served a supporting role for many of the most defining and abhorrent features of the nineteenth century.

The legendary importance of the steam engine, the transcontinental railroad, and the ubiquity of the soot-covered factory as a symbol of industrialization must not occlude the fact that steam remained an integral part of nature's bounty and power. While it certainly fueled the rise of the modern city—thus alienating untold scores of impoverished people from nature's gifts of clean air and open space—it remained a *natural* resource. Indeed, one of the many ironies of steam is that an early steam engine carried a group of scientists outside of their east coast metropoli and laboratories, into the “wild” west for the purpose of writing a scientific report on steam evidencing hydrothermal activity in what would later become Yellowstone National Park. If steam powered nineteenth-century industrialism, the scientists of the United States Geological Survey of 1871 knew full-well that it also powered natural wonders, such as geysers, deemed worthy of conservation. Just as the steam-powered factory became the nineteenth-century image par excellence of culture, civilization, and progress, Yellowstone National Park became (and is still celebrated as) the symbol par excellence of the natural world, demanding a moral and ethical imperative towards conservation and preservation to fend off rapid industrial growth.

Both industrial progress as well as the beginning of the conservation movement defined public life in late-nineteenth century America and steam was an essential actor in both endeavors. Steam was evidence of each side's significance and power. Steam represented the illness of industry and the cure of nature, the engine of progress, and the driving force behind conservation, it justified the progress of civilization and the violent costs endured. In this dissertation, I argue that it is steam's liminal status during this time, its role in establishing the shifting borders between nature and culture, that makes it an interesting focal point through

which to understand some of the most defining features of early industrial modernity in both their situated historical context and legacy in our contemporary moment. More broadly, an investigation into steam's liminality presents an opportunity to interrogate rhetoric's role in establishing the binary relationship between nature and culture.

Steam as Quasi-Object and the Issue of Ontology

While steam's ubiquity can be empirically established through its emergences in both industrial and natural contexts, steam's *liminality* (and the consequences of this) can be traced by approaching steam as what Bruno Latour has labeled a *hybrid* or *quasi-object*.³ Latour defines these as human and non-human resources intimately bound up in the continuous mixture and division of nature and culture, existing in between the poles of subject and object, as actants-- both receptors of human action and actors in and of themselves.⁴ Quasi-objects occupy an important place in much of Latour's writing, where he uses them as a critical tool through which he problematizes a pervasive ontological perspective in which nature and culture are treated as autonomous domains. Importantly, quasi-objects illustrate the interconnectedness (rather than autonomy) of nature and culture—for example steam acting as a driver of industry and a natural resource. Latour argues the foundation of this traditional ontology can be found in classical philosophy, and has served to scaffold much of modern thought (and subsequent "reactions" to modern thought). This traditional ontology misunderstands objects by treating them as if they belonged to either the realm of nature *or* culture, rather than acknowledging that objects can belong to realms of nature *and* culture.⁵ Latour argues this traditional ontology has become so pervasive that our very notion of "facts" is derived from it: a fact is that which people in culture believe exists exterior of human manipulation, unfettered by "social construction."⁶

Latour is not alone in taking up this task of refiguring ontology through quasi-objects and hybrids. Donna Haraway's *natural-technical object* and *cyborgs* also contribute to understanding the interconnectedness of nature and culture, bound up in moments of rhetorical situatedness "when material and symbolic threads interweave in the fabric of nature."⁷ Haraway's natural-technical object is posed to criticize Western traditions such as primatology and naturalism (endeavors part and parcel of a traditional ontology). Traditions such as these seek to identify and isolate parts of the "natural" world as objects understood "factually" and "objectively" by an observant subject, without recourse to the intimacy of human and nonhuman actors in the establishment of objective observations. To recover that human/nonhuman intimacy is to illuminate the violence Haraway claims has misunderstood the ethical implications and metaphysical commitments of these scientific endeavors. Similarly, Jane Bennett's work in *vital materiality* hinges upon the development of *thing-power*, which acknowledges the power of "cultural forms" as "material assemblages with resistant force."⁸ Things, like quasi-objects and natural-technical objects, are "vivid entities not entirely reducible to the contexts in which (human) subjects set them, never entirely exhausted by their semiotics."⁹ Focusing on thing-power as a methodological move allows the critic to "theorize events [...] as encounters between ontologically diverse actants, some human, some not, though all thoroughly material."¹⁰ Thing-power is the "curious ability of inanimate things to animate, to act, to produce effects dramatic and subtle."¹¹ In the case of my dissertation, to treat steam as a hybrid, quasi-object, natural-technical object, or thing, is to approach it as a strange and undetermined entity, until stabilized in either a realm of the natural world or cultural world by rhetorical practice.

The role of rhetoric here is not only significant for developing a more nuanced understanding of steam as a quasi-object, but contributing to enriching rhetorical studies more

broadly. In their 2015 edited volume, *Thinking with Bruno Latour in Rhetoric and Composition*, Nathaniel Rivers and Paul Lynch point out Latour's tendency in his work to rely "on rhetoric to articulate his notion of knowledge making."¹² On its face, this is not a controversial position for rhetoric to assume and certainly places rhetoric in a comfortable position within the traditional ontology--after all, rhetoric has long been constituted by its situatedness within the political, social, subjective, and symbolic. Rhetoric has been made to dwell within a particular realm of human action, human politics, and human social drama—where the natural or the nonhuman world begins, so to speak, rhetoric ends. Even relating rhetoric to an articulation of knowledge plays within a binary that constrains rhetoric to concerns over epistemology and knowledge transference. But as Lynch and Rivers remind us, it is unpacking *what* is made knowable as "reality" that deserves our attention. For Latour, action, politics, and "social drama includes both humans *and* nonhumans," and thus in order for rhetoric to wrestle with the composition of the "social" it must be able to "hold all these [human and nonhuman] connections at once," moving beyond the human/nonhuman divide.¹³ In order to move beyond the symbolic and human-centered tendencies of our discipline, we need to find a way to account for nonhuman actors and their role in constituting the "social" at the heart of rhetorical studies. In so doing, we also open up the "natural" and invigorate rhetoric's reach. In other words, Latour is asking us not merely to consider the final product that comes off an assembly line, but rather the individual parts and pieces, the assembly line itself, the regulations over how the item is produced, and the manual labor which made the final product possible. Indeed, the final product, in most Latourian projects, is the "factual" world of "nature itself." Citing Latour, Carl G. Herndl and S. Scott Graham argue, the idea of a singular and "transcendent Nature" takes away "the capacity to debate the common world, the capacity to reach agreement by closing discussion."¹⁴ In Latour's

own words in *Politics of Nature*, “nature is the chief obstacle that has always hampered public discourse.”¹⁵ This claim should deeply concern rhetoricians who, in spite of their myriad definitions for the term *rhetoric*, tend to agree on the significance and potential of public discourse in a democratic society. This claim should also inspire rhetoricians to consider a closer engagement with the “factual” world of nature as a means of expanding the parameters of public discourse—and perhaps removing the “parameters” of what we consider public.

Plato’s “Allegory of the Cave” illustrates this point well, a text Latour himself engages in the opening pages of *Politics of Nature*.¹⁶ In the lower level of the cave, Plato describes chained prisoners whose fixed gazes are centered on dancing shadows projected on the wall. Without any recourse or ability to investigate the shadows, the prisoners are left to interpret and make judgments about the symbols, though never afforded the ability to know their origin outside of the cave. From its earliest inception, bound by chains and with a fixed gaze, rhetoric was not suited to make judgments about the natural world, merely the ability to interpret shadows in terms of the symbolic and human. While there are certainly challenges to Plato and this story, these challenges do not dispute the ontology at the center of the “Allegory of the Cave.” Even Aristotle’s *Rhetoric* confines rhetoric to the realm of the contingent, debatable, and not the realm of the factual. Importantly, Aristotle maintains a divide between the variable and the verifiable—things that are rhetorical are not matters of fact, but rather matters for deliberation—rhetoric’s function is “concerned with the sort of things we debate and for which we do not have [other] arts and among such listeners as are not able to see many things all together or to reason from a distant starting point.”¹⁷ What Latour seeks to do, then, is to open up rhetoric to investigate matters of fact, not just for their “value” as facts, but their composition as such. In Latour’s terms, we should turn “matters of fact” into “matters of concern”—hybrids or

collectives of quasi-objects that arise in practice. Indeed, by introducing rhetoric to matters of concern, the world of the factual that has previously been outside the purview of rhetorical studies becomes an accessible and fruitful avenue for potential research.

In this dissertation I approach various objects as quasi-objects or things. This means approaching something like steam as undetermined, something that is *not* a priori natural or cultural. Rather, in Latour's terms, I choose to make steam *strange*. A strange steam is a quasi-object whose identity in a world of "nature" or "culture" is determined through interaction with other actants or quasi-objects within the collective that determines the social. For example, a strange steam is one that appears "natural" because of its association with hydrothermal features, while at the same time is evidence of technological culture as it powers the transcontinental railroad in a rapid civilizing mission of the western frontier. So understood, steam allows us to grasp a fuller understanding of technological development, conservation practices, and relations with Native Americans. All of these areas were definitive aspects of the republic's first full century. As such, the liminality of steam, and its intersection with both industrialism and conservation is what makes it such a powerful and prominent "fact" of nineteenth century life. Steam is capable of explaining our epistemological and ontological orientations towards industrialization, natural conservation, and Native Americans at a time formative for both national identity and public policy. On a larger scale, steam illuminates the paradoxical impulses of technological progress and environmental conservation. When the driving force of industrialism can literally be found in nature (through steam, or other natural resources), and the impetus for natural conservation comes from understanding the power of industry, we call into question the fate(s) of these enterprises and our political postures towards them.

In the chapters that follow, I present three case studies in which the liminality of steam between the poles of nature and culture is presented. Chapter two takes the object of the steam engine as its central focus and illuminates its life as a vibrant thing, networked in a vast imbroglia that bears implications for conceptions of nature, nationalism, and civilized geographies and peoples. Chapter three traces steam as a major contributing factor in arguments for the preservation and conservation of natural places. In this chapter, I trace steam's flexibility as it applies to the geysers found in Yellowstone National Park and the trains of the Northern Pacific Railroad that made the establishment of the park possible. Chapter four examines the relationship between steam communication, civilization, and savagery in the process of constructing, completing, and publicizing the transcontinental railroad. In the process, communication, as mobilized by the steam engine, becomes a violent distinction between white settlers and Native Americans. Together, these chapters not only provide insight into the historical meanings indexed by steam but also the consequences of those meanings for the traditional ontology in question—the political choice that separates subjects and objects, nature and culture. By tracing steam, we can see not only the historical imprints of this binary and its consequences therein, but its legacy in our contemporary political climate. Specifically, an historical inquiry of this type provides insight into our rendering of similarly liminal actants at the border of nature and culture: fossil fuels, solar, wind, and nuclear power, to name but a few. At a time when our relationship to the environs is plagued by very real and serious threats to both humans and nonhumans, and to the ecological longevity of the planet and the myriad life it sustains, this inquiry could not be more germane. To conclude, I propose a consideration of the difference between rhetoric-powered steam and steam-powered rhetoric. I posit that rhetorical studies has long been dealing with what I call “rhetoric-powered steam,” meaning the “factual”

life of steam (and objects generally) is circulated as a fact because of a perceived inability for rhetorical criticism to open the black box of the factual to illustrate its politics or contingency. In other words, facts are given their power because of their supposed distance from rhetoric. Because rhetoric is traditionally confined to the “social and the political” facts move through public life with ineffability. A steam-powered rhetoric, on the other hand, is one in which the vibrancy and interconnectedness of things and matters of concern grants rhetoric greater critical purchase and power, as it is poised to illustrate the politics of common, everyday “facts.” I understand this fundamental shift in rhetorical methodology to be an important step forward in considering how rhetoric can wrestle with ecology and the vast networks of quasi-objects implicated in moments of ecological crisis.

Literature Review

This project builds upon three primary traditions of inquiry: Rhetoric of Science and Technology, History of Science, and Ecological Criticism.

Rhetoric of Science and Technology

Rhetoric of Science and Technology (RST) has been a considerable area for research in rhetorical criticism for nearly thirty years and has produced numerous fascinating case studies, books, and debates. Through this scholarship, rhetorical critics have been pushed to consider argumentation between scientists about science, the translation of scientific research to lay audiences, the strength or weakness of scientific argument in the public sphere, how rhetoric about science impacts policy, and debates over the role (or place) of rhetoric in criticizing scientific practice and what the parameters of such an inquiry should be.¹⁸ My project both contributes to and criticizes this ongoing conversation in two primary ways. First, steam has yet

to be written about in RST literature despite its ubiquity in the technological, natural, and political resonance of the nineteenth century. While Kevin Deluca has written about the relationship between trains and Yosemite National Park, and his work similarly focuses on the railroad companies' production of tourism materials, he remains at a level of epistemological understanding, the symbolic representations of the wilderness, and knowledge transference about "nature."¹⁹ Importantly, Deluca's work approaches the natural world as something constructed through a corporate vision of "wilderness," presenting it as something that is ultimately, socially constructed. To do so, means that "wilderness" exists only as a human, discursive object, denying the nonhuman components of "wilderness" that make it so. Second, the aforementioned works (and others) approach rhetoric as a means of "revealing" some concealed truth beneath the text, or somewhere embedded in the text, attempting to show how rhetoric shapes scientific practice or exposing the human bias that lurks beneath the surface of scientific discourse or denial. This replicates the traditional ontology because it places human actors as observers from a safe distance, subject-investigators who rely on the ability to accurately represent what is "actually" taking place in any given laboratory or scientific report. Quite simply, they remain at the surface of language, or as Latour would say "prisoners of social construction."²⁰ Yet, rhetoric has been long defined by the study of great speeches, or specific speech acts, and supported by a vocabulary and pedagogical tradition that (as Gaonkar pointed out) is limited when it comes to dealing in matters of "science."²¹ However, I want to bring Latour to the foreground of RST and embrace his notion that a focus solely on discourse misses the multitude of actors that compose "reality." Presenting the natural world as something behind a layer of language that can easily be deciphered or "cracked" should one possess the correct tools of critique denies any sort of ability for the interaction between nonhumans to register as significant. Unfortunately, these

investigative tools of critique provide little recourse to addressing real and pressing moments of “ecocrises” such as climate change: Geysers erupt, and pollution intensifies, with or without the interference of a “socially constructed” world. And it’s possible the nonhuman actants outnumber and overpower the humans.

Returning to Herndl and Graham’s chapter, they argue that Latour presents a “materialist alternative” to what he has called the “failings of modern positivism” and the “hell of social construction”—a polemic which has plagued much of RST literature and made it difficult to provide insight into matters of policy.²² Latour’s materiality provides a “model of reality that escapes the twin errors of positivist objectivity”: in which there is an outside, truthful “Nature,” or “postmodern reactions,” where objects are seen as vessels for human politics with a motive to be uncovered through careful “deconstruction” of a text.²³ Ultimately, this materiality attempts to move past the division between the object “out there” and the subject ‘in here,” a task central to the refiguring of the traditional ontology. When engaging in a materialist understanding of rhetoric, especially in the realm of RST, the critic is not focused solely on examining the texts that describe specific scientific experiments or its results. Rather, the critic looks for quasi-objects, like steam, always rhetorically mobilized, and watches for their purification, or moments where quasi-objects are made sensible or stabilized as either natural or cultural. When the materiality of the natural world is used to reinforce a particular binary between subject and object, the politics of that binary is ignored in favor of a “matter of fact” approach; the investigation *with* quasi-objects seeks to reignite that politics. As a rhetorical artifact, steam itself is a mobile actor that moves from the city, to the national park, through the boilers and pistons of the engine, through the uncharted territories of the western United States and around the

reservation system, simultaneously settling and churning shifting arguments for cultural progress and nature's conservation.

History of Science

This project also fits into a body of literature that can be described as History of Science. Articles and books contributing to history of science literature have been significant to the fields of history and the sciences, respectively, as well as sociology, anthropology, and political science, among others. While Communication Studies generally and rhetoric specifically have yet to contribute much to this body of work, I do not feel this is due to an inability for rhetoric to approach the history of science. Those engaged in conversations about the history of rhetoric could benefit from considering how their inquiries overlap with the history of science. One of the issues at stake in this project is that steam's resonance in both natural and cultural registers seems to present an early example when technology and the humanities, two fields that at present seem at odds, were substantively connected. We might consider, then, rhetoric's ability to historicize quasi-objects, in an effort to illustrate the networks in which these sorts of seemingly paradoxical convergences occur.

Sidney Mintz's *Sweetness and Power: The Place of Sugar in Modern History*, provides a provocative model for this task. In his book, Mintz is concerned with tracing the role of sugar in the development of the modern world and how "Caribbean sugar industries have changed with the times," representing "in their evolution from antecedent forms, interesting stages in the world history of modern society."²⁴ By studying the production and distribution of, what is now a ubiquitous, and standard element in the diet of most the developed world, Mintz provokes insight into "an anthropology of modern life" writ large.²⁵ Similarly, this project traces the political register of a culturally common and "natural" thing--steam. Like sugar, steam is not only natural

but mass produced and ubiquitous. This type of consideration for “everyday” objects is also performed by Haraway’s work with primates as “natural-technical objects” in *Primate Visions*, and Bennett’s meditations on trash accumulated in a gutter in the first chapters of *Vibrant Matter*; primates, trash, sugar, and steam, in their political and natural iterations, help define the shape of modern life because they help define both nature and culture. Latour’s insight here is also particularly useful. In *Pandora’s Hope* he traces certain scientific inquiries and their implications in producing the “reality” of science.²⁶ Throughout the chapters of his book, Latour examines the process by which parts of the material world (bacteria, lactic acid, and soil, to name a few) become solidified as matters of scientific knowledge. His inquiry brings to the foreground processes that scientists, politicians, advocates, and others utilize in order to make salient particular “matters of fact” as self-evident. My project performs a similar task, tracing numerous emergences of steam in diverse contexts, to understand the way it becomes packaged for consumption in the “real world.”

Ecological Criticism

Finally, my research is informed by the emerging work in Ecological Criticism, which I bring into conversation with scholars of rhetoric in the Communication Studies discipline. Importantly, Ecological Criticism is explicitly positioned to reinvigorate the role of ontology for scholars of Environmental Communication, where researchers such as Phaedra Pezzullo, Kevin Deluca, and Anne Demo, among others, have illuminated the possibility for criticism to account for the role of rhetoric for environmental justice and activism.²⁷ Admirably, much literature in this area is deeply concerned with consciousness raising to not only the ways in which our conception of language shapes our understanding of the environment, but also to bring attention to the very real and serious problems that threaten our planet through everyday practices of

consumerism and tourism, for example.²⁸ However, work in the field of environmental communication is hindered by the same thing setting it apart from other areas of inquiry—its focus on the environment as something “out there” and representable through discursive practices and upheld by the aforementioned traditional ontology.

Environmental Communication has been crucial in developing nuanced criticism of corporate social responsibility strategies geared towards protecting the environment, illuminating the sometimes-troublesome motivations for these practices. Further, Environmental Communication has contributed to the importance of environmental justice movements, situating these in a long tradition of social movement studies and providing important pedagogical resources for individuals seeking to make meaningful and salient the very real environmental crises in which we find ourselves. However, I take as a fundamental blind spot in this research, the notion that there is an isolated environment that can be protected through exposing its social construction. A serious and recurrent issue within Environmental Communication literature is a focus on the environment as something that is either knowable through its social construction; something stable; something that exists as-is against a sea of subjects engaging in the messy world of “identity politics” and shifting subject positions; or something that has a pure state to which we can return, if only we knew how far capitalism had taken us astray.²⁹ For too long Environmental Communication has been chasing its tail, upholding a division between subject and object, nature and culture. This division keeps us further away from nature, when we really need to be writing from within the collective in which nature emerges.

To answer this gap in Environmental Communication scholarship, I want to offer Ecological Criticism as a potential solution. Most recently popularized by Timothy Morton, ecological criticism will help urge Environmental Communication scholars away from the

romanticized environment that appears so centrally in the literature—either as the thing criticized or the thing in need of protection. One of Morton’s more fundamental conceits is that “the very idea of ‘nature’ which so many hold dear will have to wither away in an ‘ecological’ state of human society.”³⁰ By “nature,” Morton is referring to the romanticized idea we hold of the outside world that influences the “ecological imaginary,” or the transcendental, sublime nature, that directs so many of our attitudes today.³¹ By examining the “fine print of how nature has become a transcendental principle,” Morton urges a “rethinking of environmental aesthetics,” that accounts for far more than the environment as such.³² Rather, the critic is encouraged to slow down and examine “anomalies, paradoxes, and conundrums” that complicate the idea of the environment—or in Latour’s terms, the moments of “concern” that illuminate the solidarity of “fact.”³³ Specifically, Morton takes to task “the rhetoric that evokes the idea of a surrounding medium” which will always fail to provide “compelling and consistent” challenges “meant to change society.” Further, and what I think can be brought to bear specifically on environmental communication is Morton’s idea that “putting something called Nature on a pedestal and admiring it from afar does for the environment what patriarchy does for the figure of Woman. It is a paradoxical act of sadistic admiration.”³⁴ This anthropocentric perspective is what Morton stresses should be shifted to what he calls “ecologocentrism.”³⁵ Ecologocentrism means explicitly accounting for ecology as such—the mixed, churned, world of humans and nonhumans. To investigate this, the critic needs to account for a “materialist way of reading texts with a view to how they encode the literal space of their inscription [...] the spaces between the words, the margins of the page, the physical and social environment of the reader.”³⁶ In the context of my research, I approach each text for the implications bearing on the reader during the nineteenth century—in a sense, the way it implicated the reader’s ontological position.

Importantly, Morton situates his book in the same period as my work on steam—the nineteenth century and the emergence of Romantic and Industrial sensibilities in American culture.

Finally, Morton also contends that the “reality” of nature is “all too real, and has an all-too-real effect upon all-too-real beliefs, practices, and divisions in the all too real world, to be confined to a single and unitary place in the social construction of art and writing.³⁷ While he may claim there is “no such ‘thing’ as nature,” he means it is not singular, but rather “a focal point that compels us to assume certain attitudes,” or be attuned to sensibilities through “ambient poetics, a way of conjuring up a sense of surrounding atmosphere and world.”³⁸ Through adopting this perspective, this project pushes back on the notion of the environment in favor of ecology, accounting for the relations between humans and nonhumans in solidifying ideological positions towards nature, its ills, and its cures.

Chapter Previews

Chapter Two: Concerning the Steam Engine as Thing

In the three chapters that follow, I will tell the (albeit partial) story of steam during the nineteenth century. Chapter two focuses on discourses about steam engine development and technology and illustrates how rhetoric can be used to interrogate objects or matter of fact. Importantly, this chapter turns the discreet object of the steam engine into a complex, interconnected, networked thing. As such, this chapter illustrates how the steam engine itself, a technology that appears so centrally in chapters three and four, was from its very inception a political and polemical matter of concern. Before the steam engine was a well-established fact of public life, it was a complex quasi-object or thing that illustrated an intimacy between engineers and the natural world, a sense of American nationalism closely tied to technology, and establishing civilization from its opposites. When the steam engine is presented as an object this

complexity disappears, and so does its politics. By focusing on this complexity, the steam engine becomes less of a factual object in favor of a vibrant and politically powerful thing.

To make this case, I focus my attention on three separate books about the steam engine. All of which, taking the steam engine as their central topic, illustrate various elements of the imbroglio or network of the steam engine. Oliver Evans's 1805 *The Abortion of the Young Steam Engineer's Guide* makes a case for the steam engine's intimate connection with the natural world, elaborating on how steam engine technology first and foremost relies upon a close relationship to nature. Following, John Adolphus Etzler's 1833 *The Paradise Within Reach of All Men* builds upon the imbroglio of the steam engine by acknowledging not just its connection to the natural world, but tying that connection to a burgeoning American nationalism. In other words, further investment in steam engine technology played a key role in designating America from her economic and military counterparts. By the late-nineteenth century, after the completion of the transcontinental railroad, and when industrialism in the United States was well underway, steam's imbroglio grew to include not just nature's power or American nationalism, but civilized geographies and dispositions. Robert Thurston's 1878 *History and Growth of the Steam Engine* demonstrates this point as he traces the history of steam engine development as it mapped onto the history of civilization. A consequence of this move is it establishes not just civilized people and places geographies, but draws implications for those who fall outside the purview of civilization—those who might be considered “savage” or “barbarous,” who were intellectually or geographically distanced from the steam engine. One of the stakes of this chapter is establishing the groundwork for the two chapters to follow. Once we understand the basic premise that the steam engine itself has a politics, we can more clearly trace its polemical role in the establishment of National Parks and the complicated path of western expansion.

Chapter Three: Geysers, Railroads, and the Creation of Nature

On the other side of the push for progress through steam engine development is another defining element of the late-nineteenth century; the conservation and preservation of natural spaces. Chapter three is concerned with the ways in which steam shaped the conception of “natural spaces” through its role in promoting conservation practices mirrored in National Parks. Since Yellowstone’s designation as the first National Park in March 1872, it has been celebrated as the foremost exemplar of the United States Government’s dedication to conservation and preservation of natural places. However, I argue in this chapter that Yellowstone’s preserved naturalness emerged as a result of two competing rhetorics of steam—both as a marker for progress and culture, and as a natural process occurring beneath the surface of the earth. Without the presence of these two iterations of steam, I argue Yellowstone would have never been protected as a “natural” place.

According to the National Park Service, the numerous and varied hydrothermal features found in Yellowstone were the primary reason justifying the park’s establishment—hydrothermal features made evident to early explorers by the presence of steam. The geysers in Yellowstone were a “matter of fact” in the creation of the park, however the factualness of nature in Yellowstone required the steam engine to render the geysers catalogued as “natural” iterations of steam. To examine the way in which steam functioned both naturally and culturally in the context of Yellowstone, I analyze three texts that were crucial to either the establishment of the park or its proliferation as a wonderland populated by natural curiosities. Nathaniel P. Langford’s “Wonders of the Yellowstone,” Dr. Ferdinand V. Hayden’s official report of the U.S. Geological Survey of the region, and the Northern Pacific Railroad’s “Wonderland of the West” pamphlet published twelve years after the park’s establishment. Through these texts, I articulate

a vast network of steam that shifts to provide evidence of nature or culture, depending on which side of the park's boundary one stood. Yellowstone National Park's "naturalness" depended on rhetoric about steam to concurrently purify the relationship between nature and culture, all the while requiring its promiscuity to justify the park's establishment. Importantly, the legacy of Yellowstone forever changed the ways in which Americans understood their relationships to their land as well as the moral and ethical obligations to preserve and conserve natural landscapes.

Chapter Four: Communicating Civilization and Savagery

When the first transcontinental railroad was commemorated with a Last Spike Ceremony on May 10, 1869 at Promontory Point, Utah, the United States entered into a new era in the security and development of the nation. This new era was one in which communication--the "access or means of access between two or more persons or places"-- was inextricably connected to the transcontinental railroad and the extension of American empire.³⁹ I argue that in this process of nation building, communication served an important role in mediating the "civilized" and the "savage" in the vast terrain of the open West. As such, "savage Indians," or "treacherous landscape" served as both an obstacle to the project of steam communication, but also a vital part of its justification. To illuminate this relationship, I illustrate how communication (as it appears in rhetorical history) has been used to designate the border between "civilized" and "barbarous," and how that mediation often justifies colonial and racial violence.

With this lens, I provide a critical reading of tourism guides written after the completion of the transcontinental railroad for the way in which they situate the relationship between civilization and savagery as maintained by steam communication. Written for the potential tourist, migrant, or armchair traveler, these guides narrate the mobility of communication across

the vast terrain of the United States and present a carefully constructed understanding of the west's history, present, and future where the distance between savage and civilized is preserved by communication. By structuring my analysis chronologically, I am able to show how communication was used to transform the west from wild to civilized, and how it rationalized the destruction of the land and justified the ruthless treatment of Native peoples.

Implications

This project bears implications for rhetoric as well as larger transdisciplinary conversations about our contemporary moment of ecological crisis. For scholars of rhetoric, this project demonstrates an engagement with historical artifacts, which enable us to better understand rhetoric's role in the establishment and endurance of facts. Facts, which are generally assumed to exist as given, and belonging to a world of objective reality, are always tied to particular rhetorical practices. Facts, such as what "counts" as the world of nature or culture, are contingent upon a number of (f)actors—differentially interested human and nonhuman actors who confluence in a moment of supposed stability. This is not to say that there is, in Latour's words, "no such thing as reality," but that reality itself is a series of rhetorically contingent actors, coalesced in a moment of perceived stability and "factualness." The binary between nature and culture is one such moment of presumed stability. What we presume our relationship is to the natural world is never as "given" as we perceive it to be in policy decisions and efforts to address global environmental problems. Furthermore, by introducing quasi-objects into rhetoric's arsenal of methodological paths, we liberate rhetoric from the confines of the social and allow it to do work in the messy reality of humans and nonhumans.

Second, to take seriously the rhetorically maintained border between nature and culture is to refigure our relationship to the environment in meaningful ways. In this sense, I concur with

Timothy Morton's push for us to think from a perspective of ecology—to understand how the binary between nature and culture short-changes the complexity of humans and nonhumans continually and inextricably mixed. In other words, if we can imagine the environment, or nature, or climate as complex mixtures of humans and nonhumans, in which there is a deeply entwined dance where all parties are simultaneously both acting and being acted upon, we might see new solutions, or perspectives from which we can address our shared crises. The world is indeed complex, and so are its problems. Rhetoric, by turning to quasi-objects can help complicate our solutions by increasing the number of humans and nonhumans sharing the collective. In order for critique to continue to perform meaningful work that helps address the serious problems we collectively face as humans and nonhumans, methodology must reflect quasi-objects, hybrids, natural-technical objects, things and it must reflect the complexity of our common world. Indeed, in order for critique to do meaningful work, we must remember steam.

Chapter II: Concerning the Steam Engine as Thing

The border between nature and culture is a contested, political boundary. This border shifts, fluctuates, and is never stable, but can appear so given particular circumstances and optics. At times, certain objects can seem to be factually part of the realm of the cultural, while other objects manifest as natural, existing without human intervention. This border geographically delineates place, distinguishing locations that are natural and wild from those that evidence culture and civilization. Humans are implicated by this shifting boundary as well. During the nineteenth century Native Americans were racialized as backward “savages,” considered “stuck” in a state of nature. Meanwhile, white colonists and settlers, operating under the purview of Manifest Destiny, were self-defined by their relationship to civilization, culture, and progress. Even nonhumans are sorted into the realms of nature and culture—trees on the one side, electricity on the other. Objects play an important role in establishing and defining this border, and as a result can have immense consequences. As objects become salient in either the realm of nature or culture, they bear implications for many areas of public life, including some dark and horrifying moments in the history of the United States.

As the introduction to this dissertation noted, Bruno Latour has made significant contributions to understanding the binary between nature and culture and its politics. The assumed separation between nature and culture, he claims, is something particular to a “modern critical stance” that establishes the purification of humans and nonhumans into discrete ontological zones: human subjects on one-side and nonhumans objects on the other. Objects, Latour claims, are understood as matters of fact in this modern constitution. In his article *From Realpolitik to Dingpolitik or How to Make Things Public*, Latour claims that “for too long, objects have been wrongly portrayed as matters-of-fact,” solidified and incontrovertible.

Whereas, in actuality objects are far more “interesting, variegated, uncertain, complicated, far reaching, heterogeneous, risky, local, material, and networky” than their matter-of-factness would lead us to believe.⁴⁰ In other words, objects are the opposite of settled and factual. Rather they are imbroglios—complicated networks entangled with politics, religion, sciences, humans, nonhumans, nature and culture. In order to understand the imbroglio that constitutes various objects, Latour urges us to transition from objects to things. The difference between objects and things is that things are “a certain type of archaic assembly.”⁴¹ Things are “matters of concern” which entangle different entities, ideas, and interested parties, and necessarily precede the objective “matter of fact” that becomes an independent, self-sustaining object.⁴² Thus, in order to reinvigorate a critical process that takes the “objects” of modernity seriously, we must peer inside of objects to gain a better sense of their thing-ness. Doing so brings us closer towards “realism” that recognizes matters of fact (and thus objects) “are only very partial [...] very polemical, very political renderings” of matters of concern.⁴³ This means treating objects as anything but settled and receptive to human control and manipulation, but rather as things—networks of quasi-objects where nature and culture are churned together. In order to explain the objects that constitute unobjectionable “facts,” we must treat objects as things.

There is perhaps no object more prominent in nineteenth-century America than the steam engine. In considering the extent to which the steam engine proliferated public life, appearing in every corner of the American (and Western) empire, it was indeed a stabilized “fact” of life for those living in the early days of industrialization. The steam engine was a self-evident object. As an object, then, the steam engine was first and foremost a thing—an assemblage of civilization’s progress, the natural world, geography, man’s intelligence, and a burgeoning American nationalism. Indeed, the steam engine first relied upon steam, shifting from beneath the surface

of the earth, to the spout of a kettle and into the boilers in an engine, and along the thousands of miles of track constituting the transcontinental railroad. The steam engine was always implicated by politics, economics, science, nationalism, and importantly, a relationship between the civilized and the savage that influenced important areas of public life. In his 2004 essay (appropriately titled) “Why Has Critique Run out of Steam?” Latour claims the tool of critique has “run out of steam” or become less useful because it has tried to distance itself from facts and objects—illuminating the social construction of science or defaulting to stances such as deconstruction. In order to reinvigorate critique, he claims, we should attempt to get closer to facts by looking to matters of concern and turn our attention to things—imbroglios, or the gathering of “objects out there” and issues “very much in there.”⁴⁴ We must focus our attention towards objects presented as matters of fact, but only to understand the complicated processes that gave them their factual power. In so doing, we encounter translation—the things and matters of concern illuminating the vast, interconnected imbroglios of nature and culture. We also encounter purification, the process of establishing “matters of fact” that force us to “confront a total separation between nature and culture.”⁴⁵ I agree with Latour that we must turn our attention to the multitude of actants that coalesce to give an object like the steam engine its “matter of fact”-ness.

To reiterate, for people living in the late-nineteenth century United States, steam engines were a matter of fact of public life. Steam engines served as evidence of cultural progress and civilization’s mastery of the laws of nature. Indeed, by the end of the nineteenth century, steam engines were equivalent to civilization both in terms of the geographic spaces in which they were located, and the intellectual disposition of those who either developed steam engines or lived in their presence. As a harbinger of progress, steam engines, in Latour’s terms, were a matter of

fact. However, the power of the steam engine relied upon many different quasi-objects, one of which was the natural power of steam itself. Within the engine, steam existed under the command of man, for the purposes of civilization, supplying modern life with luxury and comfort. To be certain, steam was also a quasi-object, a thing, a hybrid of nature and culture, tied to the interactions between heat and water, the natural principle of elasticity, nationalism, colonialism, the United States Congress, national security, boilers, engineers, and ideas of paradise. Relying so intimately on the natural power of steam, the steam engine's matter of factness relied first on its ability to represent both nature and culture. In discourses about the steam engine, nature's abundant powers fuel industry and American greatness, while at the same time evidencing an intellectual ability to understand and control the powers of nature. As a power of industry and a power of nature, the steam engine was a thing whose imbroglio bears implications for various cultural and political elements of the nineteenth century, visible in discourses of nationalism, progress, and civilization.

To elaborate, this chapter approaches the steam engine not as an independent object, but as a complicated and interconnected thing. In this sense, too, the steam engine transitions from being an apolitical object to a political and polemical thing. To illustrate the steam engine as thing, I examine three separate books, which make clear select features of the steam engine's imbroglio. In sum, these books provide a window into the many disparate actors and actants that constitute the steam engine's politics. By illuminating these features, the steam engine appears contingent, implicated in the vast array of public life, ranging from the natural sciences to the progress of civilization. In other words, the steam engine was not simply a benign technological advancement, but rather a means of making distinctions in different areas of public life. As a result of examining these different components, we can see the steam engine not just as an

object, but rather a complex and political thing. In the first section, I focus my attention on Oliver Evans's 1805 *Abortion of the Young Steam Engineer's Guide*. Etzler's piece is especially significant because he makes clear the importance of harnessing and controlling natural powers, thus presenting the natural world as a key element in defining the steam engine. Second, I turn to John Adolphus Etzler's 1833 *The Paradise Within Reach of All Men by Powers of Nature and Machinery*. Etzler's text highlights strong senses of nationalism and civilizational progress attached to future steam engine technology investment. Following, I turn to Robert Thurston's 1878 book, *A History and Development of the Steam Engine* in which the steam engine serves a very particular role in writing a history of civilization. Importantly, Thurston's book focuses upon steam engine development, tapping into Evans's command of the natural world and Etzler's nationalism to compose a text in which the steam engine defines relevant epochs in the history of civilization. In Thurston's work, the imbroglio of the steam engine is narrowed, though still apparent, in support of his overarching historical account. As each of these three authors present, the imbroglio of the steam engine complicates its circulation as a concealed object or "matter of fact." Indeed, understanding the steam engine as a contested and political thing, instead of an object, bears implications specifically for chapter three of this dissertation, as the steam engine is used as an objective matter of fact justifying not only civilizational progress but also the preservation of the natural world.

Steam Engines Commanding Nature

In order to establish the steam engine as a thing, we must trace the network in which it is implicated. In that network, the steam engine must be fundamentally open to shifting understandings, processes, ideas, humans, and nonhumans. There is perhaps no clearer treatment of this openness than in technology writing about steam engine development. While all three of

the texts I consult in this chapter demonstrate the natural power upon which the steam engine relied, it is in Oliver Evans's book in which the steam engine's dependence upon the natural world is made most apparent. Put differently, the first element I want to examine in steam engine's imbroglio is the importance of the natural world.

Oliver Evans was a miller, inventor, and steam engineer who "epitomized the early industrial revolution."⁴⁶ Born in 1755 in Delaware, Evans was an "inventor-entrepreneur motivated by an innate curiosity about mechanisms" as well as the "desire to simplify the speed and performance of everyday tasks and the desire for profit."⁴⁷ As one of the first American-born steam engineers, Evans's career and inventions significantly contributed to the initial industrialization of factories and later steam-powered locomotion in the United States. Additionally, his improvements set a new standard for steam engine manufacturing domestically and abroad. By 1848, nearly thirty years after Evans's death, the "general superiority" of American steam engines was widely recognized and Evans's improvements were crucial to this distinction.⁴⁸

Ten years following the publication of his first book, *The Young Mill-Wright and Miller's Guide*, Evans' released a much shorter text primarily devoted to "discourse on the principles and technology of steam power."⁴⁹ *The Abortion of the Young Steam Engineer's Guide*, published in 1805, proved a more philosophically oriented text that provided insight into his own process of invention, as well as historical and contemporary perspectives on the importance of steam power, specifically the significance of carefully studying and maximizing the powers of nature for the purpose of productivity.⁵⁰ While his book is partially concerned with convincing Congress to fund his inventions, as well as responding to accusations of critics, it is also significant for demonstrating how discourse about the steam engine was rooted in the idea that technological

progress would follow a clearer understanding and application of natural principles. In other words, Evans argued that closer attention to nature would help shape an engine that maximized steam's own natural potential, accomplishing the work necessary for the improvement of American civilization. For Evans, there is no distinction to be made between steam's natural power and civilization's forward motion because they are one in the same.

In particular, Evans's engine accommodated a natural property of steam: its elasticity. Elasticity of steam means that under the pressure of atmosphere, steam is able to expand and insinuate "itself into the cavities of all bodies" in which it is contained.⁵¹ If pressurized properly, this expansion could happen safely without risking the machine's explosion. Put differently, condensed water vapor (steam) swells contingent upon the spatial constraints of where it is released. So long as the machine is designed with this property in mind, it could operate more quickly and with more efficient strength. Rather than merely condensing steam to one chamber, and relying on imperfect vacuums and extra chambers for cooling as previous engines had done, Evans's Columbian engine utilized the increased pressure of steam to move parts of the engine itself. Steam's natural power was doing the work. This could not have been a more crucial design improvement. Once implemented, it enabled Evans to remove one of the boilers, and reduce the overall weight and size of the engine, translating to a quicker, automated machine that was stronger in force and lighter in weight—key factors for an engine's practicability in transportation and manufacturing contexts. Importantly, this directly supported American civilization's progress, as one of the most significant steam engine developments was its application to transportation. After all, without the steam engine (and steam's elasticity), there would be no steamboats, and thus no steam-powered locomotives, since Evans's lighter engine greatly reduced the likelihood boats would sink. With the unveiling of his *Orukter Amphibolos*

(picture a modern-day “duck boat”) along the Schuylkill River in 1805, the United States became home to the second motorized vehicle in the world and a “precursor to the first automobile and the first locomotive.”⁵² The possibility of this marvel relied first upon the natural principle of elasticity, unique to his understanding and application.

At its most foundational, Evans’s book presents the reader with a simple premise—because he was able to understand steam more precisely than his predecessors, his engine would be better suited to welcome and overcome the challenges of industrialization. Taken more broadly, the natural power of steam was key to its cultural application. Indeed, Evans credited his “ingenious” improvements of his steam engine design to the “simple works of nature” he used as a guide.⁵³ “Of all the principles of nature,” Evans wrote, “steam, produced by boiling water, [will] perhaps soon be esteemed in the first class of the most useful for working all kinds of mills, pumps, and other machinery, great or small.”⁵⁴ In the service of civilization, steam will prove a “faithful servant, at command, in all places, in all seasons; whose power is unlimited; for whom no task is too great nor too small [...] to rend asunder the strongest works made by the art of man.”⁵⁵ Of course, all steam engines relied upon an intimate knowledge of steam’s natural properties in order to power their work, but Evans strongly believed his more precise application of those principles made his engine preferable to his predecessors and contemporaries. Until this point, he considered previous engines to have “wandered from the true path of nature,” something he had avoided through being closer to the true power of steam.⁵⁶ Evans claimed that because his engine design was able to accommodate an expansive, elastic steam, it translated to an improvement in the power-to-weight ratio, requiring just “one third the fuel to do the same work as prior steam engines.”⁵⁷ In essence, because his machine was redesigned to better accommodate the natural tendencies of steam, it significantly improved the conditions and

possibilities for developing steam-powered manufacturing and transportation in the United States—hallmarks of American (and Western) civilization during the nineteenth century. Near the end of his life, with steam playing a dual role as both natural power and civilization’s agent, Evans accurately predicted there would come a time when steam-powered carriages affixed with his design would become a distinct feature of life in the United States, distinguishing the US from other nations. He believed the further application of his designs would allow people and goods to be transported long distances, stating,

I have no doubt that my engines will propel boats against the current of the Mississippi, and wagons on turn pike roads, with great profit... The time will come when people will travel in stages moved by steam-engines from one city to another, almost as fast as birds can fly, 15 or 20 miles per hour ... A carriage will start from Washington in the morning, the passengers will breakfast at Baltimore, dine at Philadelphia, and sup in New York the same day.⁵⁸

Thus, for Evans, the steam engine and its great promise, could not be severed from its intimate ties to the natural world—specifically the natural power of steam required to make cultural progress possible. In other words, for Evans, the imbroglio of the steam engine included a close relationship to nature.

Steam Engines, Nature, and Nationalism

While Oliver Evans passed away in 1819, well before the height of industrialism in the United States brought his predictions to fruition, the legacy of his insight for applying natural principles to the production of mechanical energy remained intact. John Adolphus Etzler was a German-born technological utopist and inventor who immigrated to Pittsburgh in 1831 along

with his friend John A. Roebling, the architect of many iconic American structures including the Brooklyn Bridge.⁵⁹ Etzler was an especially unique figure among inventors. While his ideas were fantastical, interesting, and provocative, he did not possess the financial means to execute them. This is not to say that Etzler himself did not understand engine mechanics or provide insight into engineering in his writing, but rather that his plans for application were so unusual and bizarre, such as floating islands that could cross the Atlantic Ocean, his contributions might be better traced in the works of science fiction than the course of industrialism.

Nonetheless, Etzler was deeply invested in utilizing machinery to bring about an earthy paradise on the American continent—introducing nationalism into the imbroglio of the steam engine. While nationalism was of course relevant for Evans, Etzler was unique in using it as the crux from which he justified further investment in steam engine development. He believed his path was an alternative future for industrial progress and insisted there was “no country in the world [...] better suited and constituted for the application” of his plans “than the United States.”⁶⁰ Importantly Etzler’s paradise was not only deeply integrated with machine power, it hinged upon an intimate knowledge and application of natural entities, such as steam, which were used to ignite his fantastical devices. It was his vision that “within ten years [...] every thing (sic) desirable for human life may be had for everyman in superabundance, without labor, without pay,” by powers of nature and machinery.⁶¹ In 1833, Etzler published the appropriately titled, *The Paradise Within Reach of All Men, Without Labour, By Powers of Nature and Machinery*, which served as his first official proposal for bringing about his earthly paradise. Steam’s power, already on display in many major cities of the eastern United States and on his home continent in the steam engine, was key for his vision. Importantly for Etzler, the steam

engine that made his paradise possible was both evidence of properly applying a natural resource such as steam, and a marker of American distinction.⁶²

A central premise of Etzler's book was acknowledging the vast array of energy sources available in nature. Specifically, he believed there were "powers in nature one million times greater than the whole human race is able to effect by their united efforts of nerves and sinews."⁶³ He believed these powers were not "hidden" or "secret," but fully at the disposal of a man who could carefully study and apply their principles.⁶⁴ Steam was one such power. Importantly, steam was also one of the means by which he sought to infinitely sustain his paradise, making possible the idealized society he envisioned. Having studied the laws of nature applicable to steam, Etzler, similar to Evans, agreed that steam's elastic power meant it could increase in strength and was thus "subject to no limits."⁶⁵ So conceived by Etzler, "there is no power ever so great for any mechanical purpose that cannot be produced by steam" and believed there was an opportunity at hand to render these powers of nature a "million times greater" than their present use and application.⁶⁶ Etzler further demonstrated knowledge of steam's natural power by recognizing that nature itself can be unpredictable, operating erratically or in "irregular ways."⁶⁷ Thus, he would remedy such "inconveniences" by "putting a medium in between the powers and their final application, in order to convert them into uniform operations, or, in other words, into perpetual motions within uniform powers."⁶⁸ To do so, he relied on what he called "re-active" power, which functioned similarly to the automation achieved by Evans. The primary difference was Etzler's design did not just rely on steam's natural elasticity or properties to move the engine parts, but relied on steam's interaction with an entire host of other natural forces—wind, water, and sun, to support a device's "continual" operation through equalizing and accommodating natural fluctuations from the power source.⁶⁹ Understanding these "simple

truths” of nature, so basic “that a child of ten years may even comprehend them,” was vital to transforming the entire face of the earth to suit man’s needs.⁷⁰ By encouraging natural processes such as the “transformation of water into steam,” Etzler contended that man would command in a single machine “ten times the power than the whole human race may ever want for all imaginable purposes.”⁷¹ He believed that to perpetuate a “narrow conception” of man’s relationship to nature or to be inattentive to the natural gifts bestowed by the “Maker,” meant ignoring the very possibility of improving the human condition.

In expanding the steam engine’s network, Etzler illuminated its role as a crucial force for sustaining his new civilization on the American continent—for Etzler, there was no paradise without steam engines. As such, he was concerned with how the power of something like a steam engine would support the progress of civilization. He strongly believed that an application of his machines, and the proper channeling of natural energies would “produce a total revolution of the human race” in just one short year, creating a “paradise” beyond common conception, at the pinnacle of civilization.⁷² This paradise was also uniquely tied to an emergent American nationalism following the War of Independence, situating the United States as poised to become the leader in civilizational progress, supported by nature-powered technology. Given that his book was also written with the intent to persuade Congress to invest land and money in his plans, he guaranteed their support would enable the United States to “accelerate their march towards their supreme power and influence over the whole world.”⁷³ As such, Etzler made specific appeals to the potential of American power in light of the application of his ideas. As a result, the steam engine’s imbroglio also included “weapons for conquering and subjecting nations,” and an ability to approach Europe “within three to four days journey, by means of impregnable fortress.”⁷⁴ Elaborating on national security, Etzler posed a scenario to Congress as to “whether

or not America or Europe” would be the supreme ruling power, contingent upon the first adoption of his grand schemes.⁷⁵ “The fate of the world,” he believed, was “depending on [their] decision.”⁷⁶ Ideally, the “happiest consequences for the whole human race” would arise, should his ideas take root in the United States “where situation and the national constitution” proved “eminently more favourable (sic) to the free development of the human powers for general happiness, than anywhere on the globe.”⁷⁷ Indeed the steam engine itself was a guarantor of the “happy consequences” sought by Etzler.

Similarly to Evans’s belief that a particular intellectual disposition was a prerequisite for the proper application of steam, Etzler stressed the dramatic expansion of steam-engine power as a measure of civilization’s worth. “Improvement of our condition,” he wrote, “ought to be our continual aim as long as we live,” and his steam-powered paradise was the pinnacle of his vision for this improvement.⁷⁸ He believed industry was a “virtue and a necessity to man” as it served “the only means to lead a decent life in society, to preserve us from suffering and want, to procure us comfort and even respect among our neighbors.”⁷⁹ Once fully operational, he claimed his application of steam would dramatically improve the quality of life “for many,” freeing men from confinements of tedious labor, granting leisure and pleasure in abundance. In a final appeal to Congress, he closes his piece with a choice that also makes clear steam’s support not just of civilization’s progress, but its very survival:

You are now before two roads—the only two you can possibly take—one is to examine what is offered to you; the other to neglect it and to leave it to other peoples. One way is leading you to conviction, to a paradise, to imperishable glory and power, and national independence—the other may lead to your national annihilation, to your eternal disgrace, to your subjection. The one is the road of intelligence; the other of imbecility. The one

will be eternally pursued by men of active minds; the other will be loitered on by triflers. The one road is dictated by the spirit of our age; the other by blind adherence to customs inherited from ancient barbarity and ignorance.⁸⁰

Indeed, for Etzler the “spirit” of his age is one in which things, like the steam engine, play an invaluable role in the progress of civilization as well as a reminder of nature’s explicit powers. As a result, the steam engine (and technology) becomes deeply entrenched as a means of defining civilization from its opposites, and as he presents it, defining America from her military and economic competitors. The imbroglio of the steam engine expands to include not just intelligent *American* minds, but those who would be “careless” enough to neglect its significance. For Etzler, the failure to apprehend natural powers for the purposes he outlined demonstrated “barbarity and ignorance,” and an inability to take control of one’s future and fate. Without a doubt, this particular aspect of the steam engine becomes increasingly salient as the industrial revolution *picked up steam* in the second half of the nineteenth century, as locations where steam engines were in use defined advancing civilizations. Specifically, this thread of the steam engine’s imbroglio becomes more salient in chapter four.

Thus, given the pace and progress of industrialism, the articulation of the steam engine with the progress of civilization becomes a more prominent feature as the century progresses. In the next section, I turn to Robert Thurston’s 1878 book, *A History of the Growth of the Steam Engine* in which the steam engine is a necessary element in tracing the progress of civilization. As the central concern of his text, the steam engine defines epochs of civilizational progress. In other words, the imbroglio of steam grows, accommodating a broader narrative about civilized peoples and their corresponding geographies.

Steam and Civilization

By 1878 when Robert Thurston published his book, industrialism in the United States was well underway, and while Etzler's grand schemes failed to take off, American engineering's focus on the continual improvement and development of the steam engine remained a thriving enterprise. The transcontinental railroad was completed less than ten years earlier, steam-powered factories defined major cities and produced goods that circulated the globe by steamships and locomotives, journeying across the Atlantic and Pacific Oceans safely and quickly. As chapter three demonstrates, steam engines were also crucial in establishing the necessity of creating the first National Park at Yellowstone. Steam engines were visible everywhere, and a well-established fact of life in America—specifically, a well-established fact of America's place among the most civilized nations to ever exist. Given its proliferation, the title and subject of Thurston's book made sense—because steam engines had become so visible and so transformative, it was a reasonable enterprise to devote a treatise to a chronology of their development. By the time the book was published, the pervasiveness of steam engines meant there was no argument as to the steam engine's efficiency, necessity, or its power. The engine's effectiveness was evident in its vast application. And though steam engines might have been considered a matter-of-fact of public life, Thurston's text still exhibits traces of their vast networks.

For Thurston, similarly to Evans, steam-as-nature belonged to the operating steam engine. There, in all the boilers and moving parts, was evidence that man had conquered, controlled, and harnessed the power of nature for its own benefit. In other words, steam (and thus nature) was an object under the control of a particular civilized subject. Steam did not produce civilization; instead, civilization produced a meaningful iteration of steam from within the steam

engine. Given the pace at which industrialism spread, it was generally conceded that the command of nature was the root of such progress. Indeed, this situating of steam as solely a power of nature controlled by civilization sheds a new light on the work of people like Evans and Etzler. For Thurston, work in this vein was important, but within a broader narrative of civilizational progress. That being said, Thurston's book is much more concerned with tracing the history of how man came to command and control the natural power of steam, and how a deepened understanding of steam, as evidenced in better designed steam engines, defines epochs in civilization—as each pressing epoch occurs, command of steam's power grows and circulates in service of civilization's forward motion. Importantly, whereas Thurston assumes he is offering a presentation of value-free science and inquiry, Latour would remind us that his situating of steam as a matter of fact is not benign, but rather implies a strong metaphysical orientation between subject and object, nature and culture. His presentation of science *qua* science is articulated to a definition of civilization that hinges upon man's control or command of nature from within a particular object. In other words, Thurston's history implies a definition of civilization that reflects a specific ontology, a relationship between nature and culture in which the former gains utility only under the command of the latter.

One of the most explicit ways Thurston articulates this ontological relationship is by situating the steam engine as an object that has always been associated with civilized minds. Through his chronological account, Thurston provides a history of advancements in steam engine technology dating back to Ancient Greece and Egypt, focusing on general improvements and specific inventors. Importantly, Thurston devotes significant attention to the way in which ancient scientists and inventors were carefully acquainted with some aspect of the natural sciences, but their knowledge was always incomplete, falling just short of what he considered

“practical” or “useful” application of steam power. For instance, “many traces” were found in the sixteenth century “of the existence of some knowledge of the properties of steam” though the “advantages” of that application were never realized.⁸¹ In writing about the early days of the modern steam engine at the beginning of the eighteenth century, Thurston claimed “the importance of utilizing the power of steam” was “not only recognized, but had actually been successfully attempted” by several engineers and inventors. During this time, it was the responsibility of the engineer to “economically and conveniently” utilize the “power of steam through the application of now well-understood natural principles, and by the laws of natural phenomena already familiar to scientific investigators.”⁸² However, none of these engines “could be depended upon for safe, economical, and continuous work” and as a result, it was the long process of recurrent improvement of the machine that gave the natural power of steam its true meaning.⁸³ In other words, the natural power of steam was only significant when comprehended in a long process of engine development, and it is to this process that Thurston devotes most of his pages.

Not to underestimate the significance of the steam engine, Thurston argued it served as an “agent of civilization” and one of the crucial three elements in civilization’s progress: “Religion [...] the great moral agent [...], science, the great intellectual force,” and the steam engine, “the most important physical agent in that great work.”⁸⁴ In elaborating on the present import of the steam engine, Thurston claimed, “it would be superfluous to attempt to enumerate the benefits which [it] has conferred upon the human race, for such an enumeration would include an addition to every comfort and the creation of almost every luxury that we now enjoy.”⁸⁵ Emphasizing this point, Thurston claimed “the wonderful progress of the present century [was], in great degree, due to the invention and improvement of the steam engine, and to

the ingenious application of its power to the kind of work that formerly taxed the physical energies of the human race.”⁸⁶ As such, the steam engine was presented as a technology whose success depended upon not only particular natural powers, but also the mental capacity to produce those same powers with productive, mechanical effects.

Throughout his book, Thurston reinforces the premise, similar to Evans and Etzler, that the steam engine is an intellectual achievement whose significance is best understood as a marker for civilization in a long history of invention, thought, and ideas, dating back thousands of years. In this sense, Thurston’s book effectively serves as a history of science, assuming empiricism towards the natural world, and the technological productions of “engineers” and “inventors,” focusing on the development of knowledge related to the control of steam as evidenced by the engine. Importantly, for Thurston, this history of science also serves as a history of civilization, with each progressing epoch being defined by a further command of nature made evident by better machinery—uncannily similar to how Latour designates modernity through “breaks in regular time and a combat in which there are victors and vanquished.”⁸⁷ Thurston believed that “great inventions,” like the steam engine, were “really either an aggregation of minor inventions, or the final step in a progression,” culminating in its present usefulness and utility.⁸⁸ While many earlier, smaller improvements and inventions were significant to the history of development, their appearance was ultimately ill-timed, being presented “before the world was ready to receive them,” providing an important backdrop detailing how long man had wrestled with figuring out a practical use for the power of steam.⁸⁹ By tracing the engine’s development back to particular civilized geographies or spaces, like Ancient Greece and Egypt, as well as present-day Germany, France, and England, he directly connects steam engine development to some of the most significant locations in the history of

western civilization for their aggregated work in developing the technology that proliferated late-nineteenth-century public life. In other words, the steam engine that operated throughout cities like New York and Boston, and transported people from Duluth to Yellowstone in just a few days, connected Americans to other nations, peoples, ideals, and values that could all be categorized as civilized. Americans could read their own civilization through the steam engine. Further, by including the United States in this series of civilized locations, he draws a direct connection between nationalism and civilization. The United States might have been just barely one century old when Thurston wrote his book, but achievements in engineering originating from the young continent would be valued as some of the most esteemed and important in the long history of invention. The present importance of the steam engine was not only indebted to Hero in Ancient Alexandria, or the Marquis of Worchester in the seventeenth century but to Oliver Evans in the early nineteenth century and those who followed from his designs. To emphasize the significance of the present moment, Thurston claimed, “inventions only become successful when they are not only needed but when mankind is so far advanced in intelligence as to appreciate and express the necessity for them and at once make use of them.”⁹⁰ Thus the present steam engine was both an aggregation of work performed by “civilized societies,” which prominently featured the United States, and evidence of the contemporary moment’s greatness because it was definitive proof of civilization’s command of nature. What defined civilized societies was a “useful” control of steam, and the evidence for that control was the functioning steam engine.

Given the book’s historical perspective, the progress of developing the steam engine was understood chronologically as “growth.”⁹¹ In an effort to chart this growth, he established three distinct epochs—or breaks in the regular passage of time--that describe three distinct periods: the

Period of Speculation, the Period of Application, and the Period of Refinement. In this history, the steam engine becomes the major hinge defining the differences between the three epochs—with each “victory” over nature, civilization’s progress moved forward. The Period of Speculation was long, cataloging from Ancient Greece and Egypt, and until the middle of the seventeenth century in Western Europe. During this time, civilization was well aware that steam could potentially be a useful agent, but results amounted to nothing more than an ability to heat water or open temple doors, what Thurston considered mere “devices” used to perform menial tasks.⁹² The Period of Application, dating from the mid-seventeenth to the mid-nineteenth century was when “the expansive force of steam is supposed to have actually been applied to do useful and important work.”⁹³ Thurston claims during this time, “steam began to play a more important part in social economy, and its influence on the welfare of mankind, augmented with rapidly increasing growth.”⁹⁴ Importantly, this period was defined by knowledge of the “expansive force of steam, and the belief that it was destined to submit to the control of man and to lend its immense power in every department of industry.”⁹⁵ This knowledge was not confined to “any one nation,” but was understood by “inventors and experimenters” who were “busy everywhere developing this promising scheme.”⁹⁶ “Everywhere,” for Thurston, however was still confined by particular geographical locations. The busy inventors contributing to these developments emerged “from Italy to Northern Germany, and from France to Great Britain.”⁹⁷ Indeed, “uncivilized” locations are also implied through their omission—places without the steam engine could not be considered under the purview of civilization.

Specifically, in his description of the Period of Application, Thurston turns his attention to Oliver Evans, situating him as “one of the most ingenious mechanics that America has ever produced,” and his work as definitive of that epoch.⁹⁸ For Thurston, Evans represents the best of

American inventors, and someone whose intellectual abilities directly contributed to developing civilization. Quoting Dr. Ernest Alban, a “distinguished German engineer,” it was to Oliver Evans that contemporary engineers were indebted for he exhibited the “value of a long-known principle,” steam’s elastic power demonstrated in his high-pressure Columbian engine.⁹⁹ The Columbian engine stood as an “eternal memorial” to Evans’s ingenuity that was subsequently reflected in all of civilization—in every engine, along every river, mile of track, and factory block across the nation.¹⁰⁰ This reinforced not just the importance of Evans’s work, but his nationality, forever including the United States in this historical progression.

Yet there was still work to be done. It was during the Period of Refinement, dating from the mid-nineteenth century to Thurston’s present moment, when the utility of steam-power “to every great purpose for which it was fitted [...] had become familiar to both the engineer and the public.”¹⁰¹ In this short period of time, Thurston claimed engine design was not concerned with the “change of standard type, or the addition of new parts,” but rather “invention was confined to details,” for example, through better-designed valves, valve-types, and regulatory apparatuses.¹⁰² Importantly, Thurston characterized the motivation of inventors during this time as an “example of ‘the survival of the fittest,’ [...] marked by the dying out of forms of the engine least fitted to succeed in competition with others,” and the retention of a more efficient, standard type of engine design and operation.¹⁰³ While the nod to Social Darwinism and “survival of the fittest” is glossed over by Thurston, it is provocative in the context of the relationship between the steam engine and civilization. Especially considering most of the inventions Thurston celebrates in this period originate in the United States and the minds of American inventors, there is an explicit connection drawn between establishing the “intelligence” and “superiority” of those nations and inventors as superior to their “savage” counterparts who have not demonstrated the same

“command” or conquest of nature. This passing phrase does important work in establishing the connection between commanding the natural world as a prerequisite for civilization’s progress. The concept of fitness illuminates the retrospective importance of steam engine development not just during the nineteenth century, but throughout recorded human history, situating its current form, and the labor of “intelligence” that came before as contributing to the pinnacle of “fitness.” To be certain, the steam engines in use during the second half of the nineteenth century had accomplished more than opening doors or propelling locomotives—they distinguished civilization, nations, and intelligence. Those who could fully understand and put to practical use the powers of the natural world were destined for progress through these ingenious developments of machinery.

Conclusion

This chapter complicated the factual object of the steam engine by illustrating the vast assemblage of ideas, nonhumans, humans, and geographies, which constitute the steam engine as a thing or a matter of concern. In each section of my analysis I built upon the imbroglio of the steam engine, showing how it was implicated in man’s relationship to nature, early American nationalism, and the progress of civilization writ large. When we consider these three texts and their contributions, it is clear that when the steam engine appears in various areas of public life during the nineteenth century, it is not merely a benign technological advancement, but rather carries with it an array of ideological positions, material relationships, and political power. By the end of the nineteenth century, when the steam engine-as-technological advancement represents progress and civilization, we must also consider what it gathers in order for that representation to be clear. On the one hand, the steam engine gathers the natural world, illustrating a particular relationship between man and nature. This becomes especially clear in

chapter three. Because the steam engine was able to serve as evidence of a particular ontological relationship between humans and nature, it makes sense that in the pursuit of civilization and progress man would see fit to set aside a particular portion of the natural world as something contained and bordered. Indeed, one of the primary goals of the following chapter is to examine how the object of Yellowstone is far more complex than a collection of hydrothermal features, plants, and animals. On the other hand, the steam engine also gathers individuals and geographies where civilization does not appear. By associating the steam engine so closely with civilization, it also delineates those who are considered “savage” or “barbarous” through their rejection or separation from steam engine technology. This part of the steam engine’s imbroglio plays a key role in chapter four when the steam engine, in the form of steam communication, becomes a means of distinguishing “civilized” from “savage” in the American west. In the course of this, the steam engine comes to justify the violence enacted against both Native Americans and the “natural” western frontier.

In considering the historical imprint of the nineteenth century, we would be smart to remember the steam engine for all of its contributions to manufacturing and transportation that defined the Industrial Revolution and technological progress. We would also be wise to remember that the steam engine’s legacy in the nineteenth century is also an ontological legacy in which the relationship between nature and civilization was made visible by the steam engine. To be certain, this chapter opens up an a field of potential questions in considering how the technological objects that populate much of our everyday lives are implicated in vast networks and imbroglios that shape the politics of everyday life.

Chapter III: Geysers, Railroads, and the Creation of Nature

Of all the flora, fauna, and natural wonders preserved in Yellowstone National Park, the most ubiquitous is steam. Since trappers and traders made their wealth in what is now Montana and Wyoming, the region has been celebrated for its magnificent scenery and geographic features. In March 1872, the United States Congress capitalized on this notoriety when it saw fit to set aside a portion of the territory “for the benefit and enjoyment of the people” by creating the first National Park at Yellowstone.¹⁰⁴ During the congressional hearings and in the publicity surrounding the designation, one of the most compelling arguments in Yellowstone’s favor was its extensive collection of hydrothermal features. The numerous geysers, fumaroles, hot springs, and mud pots found in the region were evidence of volcanic activity beneath the surface, and untouched natural processes representing “nature’s handiwork.”¹⁰⁵ According to the National Park Service, Yellowstone still holds the title as the “World’s Largest Collection of Geysers” and a “wonderland” where “Old Faithful and the majority of the world’s geysers are preserved.”¹⁰⁶ These geysers, the Park Service states, “are the main reason the park was established in 1872 as America’s first national park.”¹⁰⁷

All of Yellowstone’s hydrothermal features rely upon the interaction between liquid hot magma beneath the ground and the presence of water on the earth’s surface—flowing down mountains and into the many rivers coursing through the region. When this water enters the ground and is heated by the magma, steam emerges from cracks in the ground, the surface of a spring, immediately before a geyser erupts, or for hours after it has ceased. Were it not for the steam, there would be no geysers or fumaroles. Indeed, without steam, there would be no Yellowstone National Park.

However, before the park's establishment and before the official United States Geological Expedition to the region, steam played a different role in the park's creation. The Northern Pacific Railroad (N.P.R.R. hereafter) was crucial in developing the tourism potential of a national park by using steam engines to transport tourists from the east with the promise of unparalleled natural attractions upon arrival. The N.P.R.R.'s Yellowstone Line eventually became the official route to the park and two years prior to the park's designation, the company financed one of the most significant expeditions through the region. In the eyes of the N.P.R.R., the geysers were attractions supporting an emergent, transcontinental tourism industry powered by steam. Once the line was completed, the railroad's annual publicity materials celebrated the "Wonderland of the West" and emphasized the magnificence of the "Geyserland" that was Yellowstone. The National Park was a destination for the weary city dweller from the east, traveling by steam engine to a place where he or she can witness and be affected by steam as a natural wonder.

In addition to providing transportation to the park the steam engine also established a new way to understand steam's role as an agent of growth for American culture, civilization, and industry. Indeed, during the nineteenth century, the steam engine provided evidence for some that man had learned to control the "powers of nature" in a machine. The technology of the steam engine was understood not just as an efficient solution to harnessing a powerful natural resource, but a marker of civilization writ large. It is puzzling, then, how the very natural wonder travelers witnessed in Yellowstone and fought to preserve in their first National Park, was powering the engine of the Industrial Revolution from which they sought refuge. Thus as a marker of civilization as well as an untamed natural occurrence, steam was not only a means by which one could travel to Yellowstone, but a marvel to behold upon arrival.

This essay investigates the rhetorical work of steam in the construction of protected natural places and the role of steam in establishing the border between nature and culture on the land itself. I argue that the establishment of Yellowstone National Park as the country's foremost exemplar of a natural place is the product of two competing ideologies of steam. In the creation of Yellowstone, steam functioned as both a marker of civilization and evidence of untamed and unadulterated natural processes. In other words, steam in Yellowstone was purified as nature or culture, ignoring the interrelatedness of these two categories in the establishment of the park. To reiterate from the introduction, steam was a quasi-object, a non-human resource that is bound up in the continual mixture of nature and culture. By focusing our attention on a quasi-object like steam in the case of Yellowstone, the autonomy of the zones of nature and culture come under scrutiny. In other words, steam is not only something that occurs in nature, but at the same time occurs in culture. However, when we isolate steam it loses the traces of its intermingled-ness—becoming solitary evidence of nature or culture. This process of mixing (translation) and isolating (purification) are essential to the establishment of Yellowstone: without the dual role of steam, Yellowstone never could have become natural. Without the engines of the N.P.R.R., the geysers of Yellowstone could have erupted endlessly without ever being designated a natural wonder to be witnessed by railroad passengers. And without the geysers themselves, the engines of the N.P.R.R. would have continued their westward way, never stopping to note the 'natural' wonders of northwest Wyoming.

To tell the tale of two steams, I will examine three texts that make explicit the relationships between steam and the establishment of Yellowstone. First, I will analyze Nathaniel Langford's influential two-part publication *The Wonders of the Yellowstone*. Published in 1871, Langford's piece expresses how the steam "found" in Yellowstone functioned as a destination

for tourists and a wonder to be encountered by way of N.P.R.R.'s steam engine. In this way, steam evolved in close relation to tourism—both as a means of transportation and an attraction upon arrival. I focus on how Langford deployed steam in these two key ways, both as an engine and as a distinct attraction that can be planned and organized into a visit of the potential park. Second, I examine Dr. Ferdinand V. Hayden's 1871-72 official report of the United States Geological Survey conducted in 1871. In Hayden's report, Yellowstone's steam was evidence of natural processes justifying the preservation of the geysers in the form of Yellowstone National Park. Lastly, I turn to the Northern Pacific Railroad's 1883 publication, *The Wonderland of the West*, a travel guide that narrated the journey to Yellowstone by way of the steam engine with a constant anticipation of the arrival at the wondrous "Geyserland." When the cars of the Northern Pacific finally reached Yellowstone in the 1880s, steam in its two iterations constituted the borders of Yellowstone National Park. Outside the park, steam was evidence of civilization's progress, and within its boundaries, steam was a natural phenomenon designating a place where nature can be witnessed and preserved.

Since Yellowstone's establishment as a National Park in 1872, the preservation and conservation of nature has become a hallmark of the United States' landscape and politics. With fifty-nine parks across twenty-seven states and two territories (American Samoa and U.S. Virgin Islands), National Parks attract over 200,000,000 visitors every year to appreciate "treasured landscapes," safeguarded under the National Park Service.¹⁰⁸ By utilizing the "best available science, innovative education, and stewardship programs" to educate visitors over a range of topics including climate change, geology, and biodiversity, National Parks cast themselves as places where people can witness the natural world first-hand, outside the confines of a museum or classroom and away from the pages of a textbook.¹⁰⁹ However, what such an understanding

of Yellowstone and subsequent “treasured landscapes” elides are the rhetorical processes by which Yellowstone was made a land of natural wonders. The happening of nature upon Yellowstone relied (and relies) upon the sheer rhetorical flexibility of steam. Because steam could simultaneously register as nature *and* culture it affected the public understanding of geysers themselves as well as their circulation as important features of the United States’ landscape. In other words, discourse about steam allowed geysers to aggregate and form the “Geyserland” at Yellowstone, while simultaneously producing sacred “natural” landscapes especially significant to Americans living at the dawn of Industrial Capitalism.¹¹⁰

The Wonders of the Yellowstone

Before Yellowstone became the preserved land of natural wonders it is still celebrated as today, its notable features were translated for consumption and circulation. In other words, the geysers had to be made sensible or understandable for an audience who had no first-hand experience with wonders even approximating those found in the Yellowstone region. However, an iteration of steam Americans were familiar with was the engine that had become such a ubiquitous means of manufacturing and transporting throughout the rapidly industrializing east. This engine, by way of the Northern Pacific Railroad, brought the “wonders” of Yellowstone to the American public years before it could be visited with the ease and comfort of the company’s railcars.

In May and June of 1871, *Scribner’s Monthly* published a two-part piece titled *The Wonders of the Yellowstone* by Nathaniel P. Langford. The exposé told the story of the Washburn Expedition that explored the Yellowstone region in August and September of 1870. While there were numerous expeditions to the region that preceded Washburn’s, Langford’s narrative did the most work in exposing the nation to the “wonders of the upper valley of the

Yellowstone.”¹¹¹ *The Wonders of the Yellowstone* was an extensive, detailed retelling of the expedition’s journey and was unique for the accompanying illustrations that served as evidence of the “wonders” Langford described. Prior to this publication, explorers returning to the towns like Gardiner and Virginia City that surrounded the Yellowstone valley found their testimonies met with skepticism both by peers and publishers. Since the early 1800s, the stories of trappers and travelers of the region were viewed as romanticized exaggerations that could jeopardize a man’s character as truthful or a newspaper’s reputation for reliability.¹¹² Thanks in part to the detail of his narrative, corroborating expedition members, and the accompanying illustrations, Langford’s piece avoided the criticism levied against others. Notably, these prior expeditions lacked a resource that was crucial to the success of Langford’s Washburn expedition: the Northern Pacific Railroad.

Langford was, like many, intrigued by the accounts of those who had visited the upper valley of the Yellowstone and claimed to have witnessed its wonders. In particular, the stories of David Folsom who had traveled the region in 1869, “renewed [his] determination to visit the region during the following year.”¹¹³ Langford had taken a personal interest in the expedition, likely due in part to his role as a leading citizen of the Montana territory seeking to attract more attention to the region. It was strategic, then, for Langford to travel to Philadelphia in June of 1870 to meet with prominent businessman Jay Cooke. The union of Langford and Cooke proved fortuitous. At the time, Cooke was engaged in an effort to attract investors to help fund the Northern Pacific Railroad, of which his company was the primary financier, and would greatly benefit from promotional materials that served those ends. Cooke’s vision was to expand the railroads into the Northwest in an effort to bring goods from that region through Duluth, Minnesota, to the entire Great Lakes region. Langford was a valuable asset for Cooke as a man

with a “broad knowledge of Montana Territory, and the ability to present it in a light that would promote the railway.” On the other hand, Cooke provided Langford with not only the financial support to carry out the expedition, but through the publicity of the Northern Pacific, a means to attract visitors, investors, and residents to his beloved Montana Territory. Thus, on August 22, 1870, the Washburn-Langford-Doane Expedition departed Fort Ellis, Montana.

Langford was given permission to staff the expedition as he saw fit. Notably, the men who accompanied Langford on the journey had no formal training as naturalists or scientists and perhaps the selection of company speaks to his goals for the exploration. Among the party were military men (notably the expedition’s primary namesake, General Henry D. Washburn, “former major general in the Union army” who had recently become surveyor general for the territory) bankers, lawyers, businessmen, and a journalist, all of whom were established citizens of the Montana Territory.¹¹⁴ While there is no doubt that these men must have been of a particular constitution to withstand the trials of their journey, their occupations and their personal investment in the success and growth of Montana certainly influenced their understanding of the relationship between the potential park and the rest of the nation. With the success of their expedition, they believed, the success of the territory would certainly follow.

Langford kept incredibly detailed notes while on the month-long journey and upon his return to Helena spent roughly six weeks turning his “aggregated 35,000 words” into a manuscript for publication.¹¹⁵ *The Wonders of the Yellowstone*, along with a series of twenty public lectures, were both stipulations of an agreement Langford made with Cooke as “part of a publicity program in the interest of the Northern Pacific Railway.”¹¹⁶ Due to the dual interests of Cooke and Langford, steam would come to play an important role in Yellowstone as a key attraction for patrons of the railroad. Not only would the steam engines of the Northern Pacific

ferry visitors from the east, but they would do so with the explicit promise that people were due to witness “the grandest scenery on the continent,” including “boiling springs, mud volcanoes, huge mountains of sulfur, and geysers more extensive and numerous than those of Iceland.”¹¹⁷

Appropriately for the traveler (and Cooke), Langford bookended his Yellowstone story with the steam engines of the Northern Pacific. Given Cooke’s interest in developing the line to the northwest and through Montana, there was an opportunity for towns in the territory to capitalize on the pending growth. Of course, Langford was faced with an exigency to make the region appear as attractive as possible to potential travelers, investors, and settlers. The early pages of his piece praised the fertility of “one of the finest agricultural regions on the continent,” and the vast openness of the landscape, “as large as one of the larger New England States, every foot of which is susceptible of the highest cultivation.”¹¹⁸ Bozeman, “a picturesque village of seven hundred inhabitants,” located north of the future park, was poised as a town rife for railroad development and investment.¹¹⁹ As “one of the most important prospective business locations in Montana,” it was ideally located in an area “deemed practicable for railroad improvement.”¹²⁰ Meanwhile, the residents of Bozeman were “patiently awaiting the time when the cars of the ‘Northern Pacific’ [shall] descend into their streets,” bringing with them the notoriety and financial support of the railroad.¹²¹ Langford’s prose aimed to encourage this arrival.

In his *Wonders of the Yellowstone* piece, Langford sought to harness the power of steam by rendering it deployable as a tourist attraction. Strategically incorporating the hydrothermal features of Yellowstone into a spatio-temporal schema through the naming of specific geysers and a scheduling of their eruptions, Langford circulated the “powers of Nature” as attractions in a larger “Geyserland.” By naming the geysers encountered in the lower basin, as well as

recording the regularity of their eruptions, hydrothermal features in Yellowstone became isolated attractions a visitor could locate, recall by name, and schedule into a visit of the park. Simply, steam was not only contained in a machine, but also in images, schedules, and the process of naming specific geysers.

Near the end of their journey, the party desired to return home and had “suspended all thought of further exploration.”¹²² While they had encountered countless hydrothermal features to this point on their journey, in addition to magnificent waterfalls, picturesque lakes, and towering peaks, they were wholly unprepared for what they encountered just one day prior to their anticipated homecoming. As they entered the lower geyser basin, they were greeted “at no great distance” by “an immense volume of clear, sparking water projected into the air to the height of one hundred and twenty-five feet.”¹²³ As the party rode down the valley, closer to the “perfect geyser,” they examined and measured “the aperture through which the jet was projected,” the geyser’s elevation, and its diameter.¹²⁴ During their visit with this particular geyser, it erupted “at regular intervals nine times,” with discharges lasting “from fifteen to twenty minutes.”¹²⁵ As a result of this regularity and impressive magnitude, the party “gave it the name of ‘Old Faithful,’” and thus one of the most stunning and iconic features of Yellowstone National Park was born.

It is in the Lower Geyser Basin where Langford’s prose does the most work to harness the geysers in a spatial and temporal orientation that would be legible to future visitors. As the explorers ventured further into the basin, they collected various specimens, but “all of the curiosities of this basin sink into insignificance in comparison with the geysers.”¹²⁶ During their twenty-two hour stay, they witnessed “twelve in action,” half of which erupted at heights exceeding twenty-five feet.¹²⁷ In addition to Old Faithful, six of those geysers were given names

by the expedition: The Fan, The Grotto, The Giant, The Giantess, The Castle, and The Beehive. In the descriptions of each geyser, Langford revealed information that made the naming seem self-evident, each geyser distinct from the others in its vicinity. For example, The Fan's "two radiating jets of water to the height of sixty feet" resembled a "feather fan" upon falling, while The Grotto was "so named from its singular crater of vitrified sinter, full of large, sinuous apertures."¹²⁸ Each geyser was uniquely identified by these names and accompanying descriptions.

In addition to measuring the diameter on the ground and height of eruptions, they also timed the frequency and length of these geysers' activities. The Castle, a geyser named for its location "on the summit of an incrustated mound," had a "turreted crater through which a large volume of water [is] expelled at intervals of two or three hours."¹²⁹ Though some of the eruptions caught the expedition by surprise (in some instances the men barely escaping being scalded by the discharge), the geysers were all incorporated into a regulated schedule of predictable displays. The geysers could either be expected to erupt at "regular intervals," or sustained for certain amounts of time.

Each geyser was also given an individual illustration in the publication, depicting it in an active state. The woodcuts, created by artist Thomas Moran who was not present on the Washburn expedition but rather hired *post hoc* by *Scribner's*, displayed the geysers with characteristics Langford described. In Moran's illustrations, billowing clouds of steam engulfed the landscape and surrounded enormous spouts of water projecting from the earth. In some, expedition members were included to stress the scale and magnitude of the geysers; in others a narrow frame focused the attention on just the geyser and little else. Each illustration is titled with the specific geyser, and each geyser was isolated in this way, and could then be circulated

as an individualized attraction and experience for a tourist. One woodcut, the “Bird’s-Eye View of the Geyser Basin,” incorporates the whole of the geysers in one landscape resembling a crude walking map.¹³⁰ Each was labeled, and placed in relation to others while the entirety of the basin abounded with steam emerging from the earth’s surface and the various named hydrothermal features.

In order for Yellowstone to be practicable as an attraction for the Northern Pacific and Montana, Langford had to make the chaos of the natural world “legible” to potential travelers. In other words, as with the invention of the steam engine, an unwieldy natural resource once again had to be “harnessed” for circulation as evidence of man’s ability to control “powers of Nature” in the form of a new and unique attraction. Similarly to Evans, Etzler, and Thurston’s enthusiasm for the invention of the steam engine and its significance to civilization, for Langford, the geysers represented “a new and, perhaps, the most remarkable feature in our scenery and physical history.”¹³¹ When “the wonders of the Yellowstone are incorporated into the family of fashionable resorts,” the geysers of the lower basin would be among their most notable features.¹³² Aside from comparing some of the geysers’ architectures to renowned tourist attractions like the Coliseum, or iconic locations like Vesuvius or Aetna, Langford also expressed the superiority of Yellowstone’s geysers to those of “Iceland and Thibet (sic).”¹³³ And still, “those of Iceland, even, dwindle into insignificance” when compared to the geysers of the lower basin.¹³⁴ Importantly, these unique features begged further investigation. “The field is open for exploration,” Langford wrote.¹³⁵ The geysers were “illimitable in resource, grand in extent, wonderful in variety, in a climate favored of Heaven, and amid scenery the most stupendous on the continent.”¹³⁶ No other location in the world, by Langford’s estimation, could such marvels be seen and experienced by the visitor. Luckily, these “natural” wonders were

made immediately accessible, both financially (through the funding of the expedition) and rhetorically, by the engine, with which Langford closes his piece. *The Wonders of the Yellowstone* concludes with a promise to the reader, evoking the language of the sublime, so intimately tied to conceptions of nature during the nineteenth century:

By means of the Northern Pacific Railroad, which will doubtless be completed within the next three years the traveler will be able to make the trip to Montana from the Atlantic seaboard in three days, and thousands of tourists will be attracted to both Montana and Wyoming in order to behold with their own eyes the wonders here described. Besides these marvels of the Upper Yellowstone, one may look upon the strange scenery of the lower valley of that great river, the Great Falls of the Missouri, the grotesque groups of eroded rocks below Fort Benton, the beautiful canon of the Prickly Pear, and the stupendous architecture of the vast chains and spurs of mountains which everywhere traverse that picturesque and beautiful country.¹³⁷

Langford's description of Yellowstone's natural features relied upon his relationship to the steam engine both financially and rhetorically. In *The Wonders of the Yellowstone*, rhetoric about steam functions not only as a means of shaping the "nature" of steam, but also the social context in which steam circulated; steam now coursed as named and scheduled geysers, anticipating the arrival of visitors by way of the engine to witness a timely performance of unparalleled excellence. Steam's promiscuity in the process of translation becomes apparent—by playing both sides, nature and culture, evident of both the engine's promise and the geyser's significance, steam was a means by which Yellowstone becomes publicly valued as natural.¹³⁸ In other words, had Langford no relationship to the Northern Pacific Railroad, and a personal investment in that line's success, and if he did not recognize the uniqueness of the region's

hydrothermal features, the park's wonders could have fallen into the hands of private enterprise, never to be celebrated as the park designated for the benefit and enjoyment of the people.

The United States Geological Survey

Langford made his first official appearance on the lecture circuit on the evening of January 19, 1871 “to a small audience in Lincoln Hall, Washington, D.C.”¹³⁹ That evening stories of the Washburn Expedition’s adventures and discoveries fell upon the ears of audience members who were hearing for the first time an eye-witness account of wonders that had theretofore existed only as rumor. Dr. Ferdinand V. Hayden, head of the U.S. Geological Survey of the Territories, was among those in attendance. On previous Geological surveys, Hayden had attempted to reach the mysterious region, but due to harsh weather and limited resources was forced to abandon his journey. Langford’s talk, however, reignited in Hayden the desire to bear witness to the stories and he decided “to capitalize upon the current interest in the Yellowstone region by asking Congress for funds to explore it officially.”¹⁴⁰ Just as Langford was able to utilize his relationship with Cooke to fund his expedition, Hayden’s relationships with members of Congress, as well as his position under the Secretary of the Interior, proved indispensable to his plans. Representatives James G. Blaine of Maine (who was also an advocate of the Northern Pacific) and Henry L. Dawes of Massachusetts (chairman of the House Committee on Appropriations and a strong supporter of the Yosemite Grant legislation) provided necessary support to Hayden in lobbying for his expedition.¹⁴¹ With their help, the Sundry Civil Act passed March 3, 1871 and designated \$40,000 to fund “Hayden’s Geological Survey of the Territories, [...] to be devoted to an investigation of ‘The sources of the Missouri and Yellowstone Rivers.’”¹⁴²

This act gave Hayden “a free hand” in the selection of his 32 expedition members, and similarly to Langford, the company he kept spoke to the vision he had for the mission, though his vision and Langford’s diverged significantly.¹⁴³ Whereas Langford’s company spoke to financial and development interests of the Montana Territory and N.P.R.R., Hayden’s mission was one of scientific investigation and discovery. Among the party were an agricultural statistician and entomologist, topographers, meteorologists, botanists, mineralogists, zoologists, a physician, general assistants, and two photographers who served as documentarians. Notably, there was one member of the Expedition who was not selected by Hayden, but rather “accompanied the expedition ‘directly in the interest of the N.P.R.R. Company’”; the artist of Langford’s *Wonders of the Yellowstone*, Thomas Moran.¹⁴⁴

Due to the departure earlier in the season (mid-July), and the considerable increase in funding, the expedition spent roughly six weeks exploring the Yellowstone region. Upon the return to Washington, D.C. the Hayden Expedition was accompanied by “incontrovertible evidence of the existence and nature of those thermal features that had so long been rumored to exist upon the Yellowstone Plateau.”¹⁴⁵ While half of the field notes were tragically lost in the Chicago fire of October 1871, and other materials “suffered a calamity in the death by suicide of chief topographer Anton Schoenborn,” the Hayden Expedition still produced a “mass of field notes, sketches, photographs, and specimens,” enough to populate an official report and the first map on which “details were shown in their proper relationship to latitude and longitude.”¹⁴⁶ The information gathered was useful when Hayden returned to his office in Washington to write his official report that served as “the culmination of the scientific work.”¹⁴⁷ The *Preliminary Report of the United States Geological Survey of Montana and Portions of Adjacent Territories* was issued as an Executive Document in February 1872.¹⁴⁸ Totalling over 536 pages, the report

contained not only Hayden's summary, but also accompanying reports on Agricultural Resources, Paleontology, Zoology and Botany, and Meteorology, though it was Hayden who wrote in detail of the region's hydrothermal features, specifically the geysers.

In the introduction to Hayden's report, a "Letter to the Secretary (of the Interior)," Hayden provided a basic overview of the expedition, as well as notes on the activities of he and his fellow scientists. Hayden described the party's practice of keeping "a careful system of meteorological observations," preparing "charts of all the Hot Spring groups," carefully sounding the numerous bodies of water, and diligently charting "the Lower and Upper Geyser Basin."¹⁴⁹ Hayden explained that along their journey as they encountered "mountain-peaks, new streams, and other geographical localities," he followed "the rigid law of priority," meaning he would call such features by the names "which they have been generally known among the people of the country."¹⁵⁰ Though, if no name was known, then a "personal one may be attached," which in many cases for Hayden amounted to "the names of eminent men who have identified themselves with the great cause, either in the fields of science or legislation"; two fields which became entangled following Hayden's expedition and the Yellowstone Park Act.¹⁵¹

Throughout the expedition "extensive collections in geology, mineralogy, botany, and all departments of natural history were made."¹⁵² These collections, which included physical specimens, maps, and illustrations, were to eventually be "arranged in the museum of the Smithsonian Institution, according to act of Congress," and duplicates would be "distributed to the various museums and institutions of learning in our country."¹⁵³ He understood that the "main object" of his mission and subsequent report would be attained if the information gathered "tend to the honor of our country or to the increase in human knowledge."¹⁵⁴ For Hayden, the hydrothermal and other natural features in Yellowstone were valuable as an educational and

scientific resource, evidence of unique natural history, and could serve as a valuable source of knowledge for years to come.

No less than Langford, Hayden was struck by the magnificence of the geyser basin. Understandably, Hayden also took notice of the vivid colors displayed in the hot springs, the strange architecture and shapes comprising the mounds of geysers, and the grandeur of the frequent eruptions. However, Hayden showed much more concern for the geysers as objects of scientific study. Whereas Langford's geysers existed mostly as individuated attractions with unique names and characteristics, Hayden's geysers contained differing physical properties, networked to other hydrothermal features and natural processes, and served as evidence supporting scientific theories about geysers.

Perhaps Hayden's most rigorous and painstakingly detailed contribution was in the back of his report. Here, he included a two-page chart titled "Catalogue of Thermal Springs" where he grouped by locality all of the hydrothermal features encountered along the journey.¹⁵⁵ Of the nearly 580 thermal features catalogued by Hayden, all but a handful (roughly twenty) were found within the proposed boundaries of Yellowstone National Park. Aside from the geysers' locations, his data reported the number of springs in each location, their position in relation to the broader landscape, elevation, character (or class), principal constituents (what the primary features are composed of), gasses evolved (or emitted), the temperature of the spring recorded at a high, a low, and an average, and the temperature of the surrounding air. On his chart, the wonders of the Lower and Upper Geyser Basin that once served as bewildering folklore, or attractions named by Langford, were now nameless data points explaining what geysers *were* and how they could be better understood as natural phenomena.

Even when the geysers fascinated Hayden, he did not attempt to isolate them as individual attractions or features. Rather, they were all incorporated into a larger system underlying, quite literally, the entire basin. For example, The Fan geyser that appeared in Langford's *Wonders* piece was, for Hayden, not merely one geyser that resembled "a feather fan" as the water falls.¹⁵⁶ Hayden's observation concluded the Fan Geyser "consists of a group of five geysers, which play at one time, throwing the water in every direction," curiously connected to a nearby "quiet spring."¹⁵⁷ In an attempt to explain the connectivity between all thermal features, Hayden utilized a cross-section illustration of the Upper Geyser Basin that showed steam emanating from the surface and a network of pipes and caverns beneath the ground at varying depths. Furthermore, the countless maps included in Hayden's report presented very few specifically named geysers, but utilized topographical markings, elevation, as well as longitudinal and latitudinal grids to situate the geysers in a larger geological frame.

In the field, Hayden and his company performed experiments that served, in part, to uphold particular theories of how geysers operated. Bunsen's theory of geysers, which was "the simplest and probably the most correct," guided many of their observations.¹⁵⁸ Bunsen's theory determined water evaporation deposited massive amounts of silica, which contributed to the unique shapes the geyser would take on the surface. Beneath the surface, a deep tube filled with water slowly rose. It is not boiling that caused the water to rise, but rather the "column of water is elevated by the entrance of steam through ducts at the bottom of the tube."¹⁵⁹ As the water rose, it reached a quicker boiling temperature, creating an "excess of heat," which generated more steam, and "suddenly the water above is thrown into the air, mingled with clouds of steam, and we have the geyser in action."¹⁶⁰ In studying the geysers of Yellowstone, samples of the water and the silica deposits (geyserite), revealed differences in composition that Hayden

compared to the geysers of Iceland and New Zealand.¹⁶¹ This revealed that not only were the geysers of Yellowstone different in terms of their “wondrous” appeals, but that there were significant scientific differences that distinguished the geysers of Yellowstone.

On Monday, December 18, 1871, Representative Clagett, a delegate to Congress from the Montana Territory, and Senator Pomeroy of Kansas introduced The Yellowstone Park Act into their respective Houses of Congress. The bill proposed to “set apart a certain tract of land lying near the headwaters of the Yellowstone as a public park.”¹⁶² Pomeroy, citing Professor Hayden’s “very elaborate report on the subject,” urged Congress to see fit to protect the region, in part, because of the “valuable hot springs, geysers,” found there.¹⁶³ The boundaries of the proposed park were “furnished by Dr. Hayden,” and encompassed a region forty miles by fifty, taking into account all of the geysers in the Upper and Lower basin.¹⁶⁴ The bill was submitted to the Committee on Public Lands in both houses and was then sent to the Secretary of the Interior for approval. The Secretary’s letter, dated January 29, 1872, expressed full approval for the park and included “a brief report by Dr. Hayden, which forcibly presented all the main features of the case.”¹⁶⁵ During the bill’s proposal, both Hayden and Langford worked extensively to help insure its passage. Hayden “occupied a commanding position in this work,” and was “thoroughly familiar with the subject and was equipped with an exhaustive collection of photographs and specimens gathered the previous summer.”¹⁶⁶ These photographs and specimens were placed on display “and were probably seen by all members of Congress.”¹⁶⁷ This evidence “did work which no other agency could do, and doubtless convinced every one who saw them that the region where such wonders existed should be carefully preserved to the people forever.”¹⁶⁸ In his 1917 book about the history of Yellowstone, Hiram M. Chittenden, former superintendent of the

park, claimed, in no small measure, “To no individual is the public more indebted for the creation of the Park than to Dr. F. V. Hayden.”¹⁶⁹

While Hayden’s final report was in press, the Yellowstone Park legislation was drafted and passed. In the final version, Hayden devoted “a small space to the notice of this event” along with a map “expressly to show the park with its surroundings,” including the same aforementioned topographical, longitudinal, and latitudinal markers.¹⁷⁰ In his writing, Hayden situated Yellowstone within a wider relationship to the numerous rivers and bodies of water, which found their origins in the Yellowstone valley. By Hayden’s estimation, “the snow that falls” on the summits surrounding Yellowstone, gave “origin to three of the largest rivers in North America.”¹⁷¹ Here, Yellowstone is intricately entwined in a larger natural system that includes the Missouri and Snake Rivers “flowing into the Columbia and thence into the Pacific ocean,” and the Green River, “rushing southward to join the great Colorado, and finally emptying into the Gulf of California.”¹⁷² Hayden also celebrated the speed at which the bill was passed through congress and praised the beginning of “an era in the popular advancement of scientific thought, not only in this country, but throughout the civilized world.”¹⁷³ As a marker of scientific achievement, Hayden appreciated that the legislature, “at a time when public opinion is so strong against appropriating the public domain,” saw fit to set aside a 3,578 square mile tract, “for the benefit and instruction of the people.”¹⁷⁴ In this sense, Yellowstone and its geysers circulated as “a tribute from our legislators to science,” deserving of the “gratitude of the nation and of men of science in all parts of the world is due them for this magnificent donation.”¹⁷⁵ For Hayden, steam served as an agent for science and subsequently the natural world. The establishment of a National Park circulated the geysers as materials for scientific education and implicated geographical and geological elements of the entire nation to the preserved natural

resources at Yellowstone. This scientific donation exists in Hayden's prose without mention of one of the primary movers that brought it into being; the steam engines of the Northern Pacific Railroad, in effect purifying the natural wonders of Yellowstone from the cultural forces of the Northern Pacific Railroad.

Even though Hayden effectively omitted the Northern Pacific from his report and documentation of the geysers, the railroad was no less influential to his expedition and the success that followed. Logistically, the Union and Central Pacific Railroads supported the expedition by offering to transport Hayden, his company, and their supplies by rail to an outpost near Ogden, Utah, the rendezvous point for the expedition.¹⁷⁶ Though the Hayden Expedition left their rail cars many miles from the park, the railroad still found a place within the legacy of the expedition. In 1871, when *Scribner's Monthly* hired Philadelphia-based artist Thomas Moran to illustrate Langford's *Wonders of the Yellowstone*, Moran had never seen magnificent features like the ones he was tasked to illustrate. Through Langford's prose, Moran was responsible for creating the first images of the Yellowstone's wondrous features to be circulated among the American public. The images that so captivated Hayden and the public also compelled Moran to petition the N.P.R.R. to fund his passage on Hayden's expedition. During his time with the expedition, Moran "filled his portfolio with studies and sketches in color" and as a result provided countless images to be used in N.P.R.R. promotional materials for years that followed and propelled the artist to national fame and recognition.¹⁷⁷

However perhaps the most important piece Moran produced as a result of his time with the Hayden Expedition was a painting titled, *The Grand Cañon of the Yellowstone*. The picture, twelve-by-nine feet large, was considered "the most remarkable work of art" that had been exhibited in the United States "for a long time."¹⁷⁸ In this painting Moran portrayed a vast

landscape, the subject of which focused on the Wyoming Lower Falls, and “a curious mass of cathedral shaped cliffs” whose magnificent architecture and coloring “is based on a substructure of lava and basalt, with superimposed strata of cretaceous formation, largely due to hot springs.”¹⁷⁹ On the plateau between the waterfall and the distant Teton mountains, “may be seen the jets of steam from the famous geysers.”¹⁸⁰ Moran’s work did that which no prose could accomplish; it encapsulated, in a single image, many of the magnificent features that left such an impression on all those who saw it, not the least of which was distant veil of steam billowing from the magnificent geysers.

The image was evidence that supported the truthfulness of the testimonies from men who had traveled through the Yellowstone. Moran was labeled a “faithful interpreter of natural scenery” employing a craft “by which absolute truth is caught and fixed in the splendor of picturesque art.”¹⁸¹ The truthfulness of Moran’s depiction was supported by Professor Hayden whose “distinct assertion” that the painting was, in fact, “strictly true to nature,” served to support the claims to Moran’s mastery.¹⁸² When a report about the painting appeared in the *Cleveland Morning Daily Herald*, the article included a testimony from an “eminent geologist” who claimed that “without having seen the place it represents,” he could vouch for the “scientific accuracy” of the picture.¹⁸³ Continuing his commentary,

I have never seen any place like it, but I know from this picture that it exists. I have seen the famous pictures of the Rocky Mountains that I know must be false for no such mountains exist or can exist. This scene is stranger, grander, more abnormal than even the valley of the Yo Semite [sic]; but Mr. Moran’s picture makes doubts of possibility impossible.¹⁸⁴

This testimony, and many like it, aided in the circulation of Moran, his work, and most importantly, arguments for setting aside the territory of the new National Park. Cementing Moran and his painting into the history of the Park, *The Grand Cañon of the Yellowstone* was the first piece of landscape art created by an American artist to be purchased by the United States Government.¹⁸⁵ The painting was hung in the halls of the Capitol and currently resides in the National Portrait Gallery in Washington, D.C., this painting would never have existed were it not for the N.P.R.R. funding of Moran's travel aboard Hayden's official U.S. Geological Survey.

Thus the legacy of the Hayden Expedition evidenced in Moran's painting and the Expedition's official report was implicated in the mixture of the natural sciences and the cultural circulation of sublime nature. While geology might seem a far cry from landscape painting, their connection was needed in order for Yellowstone to register as natural. In other words, the U.S.G.S.-backed natural sciences and railroad-funded landscape art were required in a process of translation that made possible the Yellowstone National Park designation and subsequent purification of distinct spaces for "nature" and "culture." Hayden's official report, specifically his charting of the geysers, documented natural processes occurring beneath the earth's surface. For Hayden, the geysers circulated through institutions of science education, but also through the truthful and honest representations of Moran's work on behalf of the Northern Pacific. In this way, the "nature" of steam is one that speaks to invisible processes made visible through his careful studying, made significant not only through the report but through works of art financed by the Northern Pacific, that served as an honest and truthful representation of the features Hayden wanted to preserve.

On the days that the legislation was brought to a vote in congress, Hayden curated an exhibit "in the rotunda of the Capitol, of geological specimens brought back from the

Yellowstone region by his 1871 expedition, and with them some typical Jackson photographs and Moran sketches.”¹⁸⁶ In addition, copies of Langford’s *Wonders of the Yellowstone*, “were distributed to all the senators and representatives,” and between Langford, Hayden, and Senator Clagett, there “was not a single member of congress” not visited personally by one of the three men.¹⁸⁷ For Hayden as well as Langford, Yellowstone required the presence of both the natural wonder of steam and the cultural production of the steam engine to render its significance legible to be set aside as the great “pleasuring-ground for the benefit and enjoyment of the people.”¹⁸⁸

The Wonderland of the West

Finally, Yellowstone National Park was poised for the international notoriety so many had worked risking life and limb (literally, for some) to ensure. However, it would be roughly twelve years before widespread and direct access to the park was possible. The Panic of 1873 halted progress on the N.P.R.R.’s construction and subsequently limited visitor access to the park. When Jay Cooke failed to acquire a substantial loan due to bad credit, N.P.R.R. was forced to declare bankruptcy in September 1873, an action that initiated a domino effect of bank failures and pulled the trigger on an economic depression. Due in part to the United States government engaging in protectionist economic policies to help the country emerge from a depression, the N.P.R.R. was able to slowly build their way out of bankruptcy, with piecemeal construction of their western route to the Wonderland. On September 8, 1883, nearly ten years to the day after the company declared bankruptcy, park reserved for the people was finally connected to the road they helped finance with their own Golden Spike ceremony in Glendive, Montana. This ceremony signaled that the American public was “about to enter on the full enjoyment of the magnificent heritage reserved for them by the wisdom of congress” nearly a dozen years earlier.¹⁸⁹ In anticipation of the ceremony, *The Glendive Times* predicted that Yellowstone, “the

Garden-Spot of the World,” was destined “to be the chosen pleasure ground of a Great Continent” and beyond—with the railroad leading the way.¹⁹⁰ Thus in 1884, the Northern Pacific Railroad began publication of its “Wonderland” series; an annual travel brochure issued by the company in an effort to lure visitors to the western territories, in particular Yellowstone National Park.

Even with the line completed, the N.P.R.R. was still recovering from devastating financial loss and was desperate to attract tourists, and more importantly, investors to their line. Continuing a theme from Langford’s *Wonders of the Yellowstone*, the *Wonderland* guides were an attempt to once again utilize steam to conjure fascination and curiosity in the American public. The *Wonderland* guides emphasized the role of steam as an object of nature and culture, but purified each into distinct zones calibrated to the boundaries of the park. In the *Wonderland* guides, culture stops, so to speak, at the borders of Yellowstone where nature can then be witnessed. In other words, Yellowstone National Park becomes defined as “natural” existing apart from and in contrast to what is definitively “cultural,” ignoring the intimacy nature and culture once shared in the park’s establishment. Once inside Yellowstone, steam was evidence of nature unsullied and purified from the role of the Northern Pacific Railroad that proved so influential just fourteen years prior. Outside the park, steam engines were literally civilizing the nation by initiating growth and progress for people living in their presence. By 1883 steam constituted the borders of Yellowstone: outside the Park, steam was the foundation of civilization and progress, and within, steam served to provide evidence of “the grotesque and fantastic products of nature in her most capricious moods.”¹⁹¹

The *Wonderland* guide’s narration accompanies the traveler along each mile of track, describing significant landmarks in anticipation of finally reaching the great “Wonderland of the

World.” A journey that was previously marked for only the most “adventurous of spirits” was made simple and safe, quick and comfortable, thanks to the N.P.R.R.¹⁹² Given Jay Cooke’s mission of opening the Great Lakes region to the Northwest by rail, the journey originated in St. Paul, Minnesota, the primary headquarters of the company and the origin of the N.P.R.R.’s tracks. “St. Paul and Minneapolis,” the introduction read, “owe their commercial importance entirely to the development of the vast territory back of them.”¹⁹³ In an effort to construct the line through the financial hardships, the N.P.R.R. played a role in establishing the “bonanza farms” of the Dakota Territory. These were large scale, cooperative grain farming operations lured by the promise of the railroads as a feasible means of access to markets in the east. Most of these farms were located along the N.P.R.R., and as the bounty of wheat moved back to St. Paul via steam engines, the city’s growth followed suit.

The Northern Pacific was not shy in taking credit for the growth and industrialization of St. Paul. Citing population statistics, it was made apparent that from 1860-1884, the population of St. Paul and Minneapolis had grown from 16,222 to “a little short of 200,000.”¹⁹⁴ The impact of the railroad was seen on the “magnificent business blocks of the city,” exhibiting “commercial importance” gained by the city’s place as “the focus of railway activity of the Northwest.”¹⁹⁵ The steam engine played a significant role in modernizing St. Paul and Minneapolis, through not only commercial development within the city itself, but also by instantiating the cities as a connection between agriculture production in the west and commodity markets in the east. It was understood that the continued success of the railroad would correspond with the anticipated growth and prestige of the two cities. As the railroad promised to grow, so would St. Paul and Minneapolis, with hopes to “together form one great metropolitan city, the capital of the Northwest, rivaling

even Chicago itself.”¹⁹⁶ None of this growth or progress would have been made possible without the presence of the Northern Pacific.

As the steam engine departed St. Paul and embarked at a “rapid rate and over an excellent road,” civilization followed. While anticipating the arrival at the “one of the greatest of all natural wonders” the guide did not hesitate to bring into focus the growth and progress experienced by the rest of the state of Minnesota and western territories as a result of the Northern Pacific.¹⁹⁷ The guide attempted to appeal to the pocketbooks of investors by drawing attention to the promise of progress accompanying the line. Citing railroad growth in Minnesota over a twenty year period from just ten miles of track to “between 4,000 and 5,000,” population explosions from 172,000 to that which “exceeds 1,000,000,” and a grain production industry that ranked Minnesota “fifth in cereal productions among the States and Territories of the Union,” the railroad laid the tracks, quite literally, that made such growth and progress possible.

With haste, the engine pressed westward, filled with passengers enjoying the luxury of the N.P.R.R., through the Dakota Territory, whose “marvelous development of resources [...] will form one of the most interesting and instructive chapters in the history of the nineteenth century.”¹⁹⁸ Praising the “astonishingly rapid growth of this territory in wealth and population,” the guide directly implicated the “marvelous transformation” of the land with three distinct patterns of migration: individuals attracted by gold, those from Iowa and Nebraska, and “most important of all,” those following the Northern Pacific Railroad from Minnesota.¹⁹⁹ Whereas in Minnesota, steam helped cities like St. Paul and Minneapolis adapt to conditions of capitalism that would allow them to prosper with the rest of the country, the Dakotas owed their populations, their cities, and their development of resources to the steam engine, which, again

quite literally, brought modernity to-and-through the unsettled territories en route to the great National Park.

The steam engine also brought nature to Yellowstone National Park, but there was no mention of that intimate history in the *Wonderland* guides. When the traveler reached Livingston, Montana, he must “change cars for the Yellowstone National Park, that sublimest of natural wonders.”²⁰⁰ As the steam engine continued from Livingston, the guide addressed a question “which most concerns the public, and especially the thousands who [are now planning] to visit the enchanted spot.” That question, perhaps unsurprisingly, reads, “How can the Yellowstone National Park be reached?” The answer was clear:

Practically, there is but one route. The Northern Pacific Railroad, with its National Park Branch, running from Livingston, on the Main Line, to Cinnabar, located at the northern boundary of the Yellowstone National Park, is *the only direct and all-rail route to the Park*, there being over 198 miles of staging required by any other line.²⁰¹

However, passengers were still required to disembark the train at Cinnabar to board “coaches and light spring wagons,” to carry them “without delay to Mammoth Hot Springs (Yellowstone National Park Hotel).”²⁰² It is here, within the protected space of the park, where the role that the steam engine—specifically the N.P.R.R.—played so intimately in the establishment of Yellowstone’s naturalness evaporates. Once the visitor is inside the park, steam is evidence of nature putting forth “all her powers,” though traces of the work accomplished by Nathaniel Langford in 1870 are readily apparent.²⁰³

Quoting a “distinguished writer, in speaking of the country embraced in the Park,” Yellowstone National Park was “a region of wonder, terror and delight,” a living example of the sublime nature so many Americans only witnessed through painting and prose.²⁰⁴ It was there

where “tremendous geysers shoot up their mighty fountains, causing earth to groan and tremble by their violence; countless hot springs, indescribable in their strange beauty, show depths as translucent as the ambient air.”²⁰⁵ According to the guide, “the most wonderful things to see in the park are geysers, which are justly considered the grandest collection of these earth vents yet known.”²⁰⁶ In the Lower Geyser Basin the “unique demonstration of nature’s power [...] has lent to the National Park the name of the ‘Wonderland,’ which it really deserves.”²⁰⁷ And while “similar works of nature can be found elsewhere,” the geysers of Yellowstone are spoken of as unparalleled any where on the planet.²⁰⁸

As magnificent natural features, the geysers were “indescribable in their strange beauty,” further entrenching the unique relationship between the sublime and the natural world as well as the limitations of the human.²⁰⁹ Thomas Moran, “the celebrated artist, and noted for his skill as a colorist, exclaimed with a kind of regretful enthusiasm, that these beautiful tints were beyond the reach of human art.”²¹⁰ In addition to Moran, the guide deployed a “strong arm” of defense against skeptics through the “testimony of some of the most distinguished men of the age; men whose motives can not be impugned, men noted for their scholarship, and who wrote with the full consciousness that there are thousands who will read their words and pass judgment among the statements made.”²¹¹ In this way, nature was understood to escape cultural representation, while ironically relying upon that representation to verify its truthfulness. The *Wonderland* guide illustrated this through the inclusion of a wide variety and scope of testimonies, which were primarily concerned with highlighting the limits of representation and language when confronted with the powers of nature. When culture encountered the National Park in the form of testimonies or works of art, its function was to acknowledge a natural world severed from cultural representation, one that operated independent of the world that surrounded it, unscathed

and forever protected against the progress of civilization transforming the nation. Yellowstone's naturalness was treasured and upheld because recourses of culture could not comprehend it, however the same resources were necessary to make Yellowstone into the protected natural place it continues to be protected as today. This, in essence, purified the nature of Yellowstone from the cultural resources that not only enabled its establishment, but the ones that threatened its very existence.

Conclusion

As a product of modernity, Yellowstone National Park's creation hinged upon two things; the promiscuity of steam in its role as an object of nature *and* culture, and the absolute separation steam as an agent of nature *or* culture. Steam was at once a magnificently powerful natural occurrence and a controllable natural resource, put use for the advancement of civilization. Without steam's ability to simultaneously occupy natural and cultural worlds, the geysers in Yellowstone would never have aggregated into a Geyserland, and the Northern Pacific Railroad would have failed to gain the publicity it required on the back of the Yellowstone National Park Act in order to emerge from financial ruin.

The curiosities of Yellowstone National Park have captivated visitors, conservationists, artists, and scientists the world over. Yellowstone National Park remains "one of the last, nearly intact, natural ecosystems in the Earth's temperate zone," the geysers playing no small role.²¹² Arguably, the National Parks have forever altered the ways in which Americans have come to understand their relationship to preservation and conservation of natural landscapes. Indeed, this chapter has called into question the "givenness" of natural landscapes, highlighting the ways in which naturalness requires a confluence of actors and investments—some of those antithetical to the "nature" they are tasked to preserve. In the chapter that follows, I expand upon the role of the

railroad, and specifically its relationship to a particular understanding of communication, in transforming a previously wild, dangerous, and threatening landscape into something that can be understood as either naturally beautiful or culturally productive.

Chapter IV: Communicating Civilization and Savagery

In no other particular can the prosperity of a country be more strikingly manifested than by the perfection of its roads and other means of internal communication. The system of railroads, canals, turnpikes, post routes, river navigation, and telegraphs, possessed by the United States, presents an indication of its advancement in power and civilization more wonderful than any other feature of its progress. In truth, our country in this respect occupies the first place among the nations of the world.

--J.C.G. Kennedy, Superintendent of the 7th Census, December 1, 1851

There is no document of civilization which is not at the same time a document of barbarism.

--Walter Benjamin, "Theses on the Philosophy of History"

To be present at Promontory Point, Utah on May 10, 1869 for the Last Spike Ceremony, was to witness "the grandest of modern enterprises" in a single moment when "1,774 miles of railroad [was] united, binding in one unbroken chain the East and the West."²¹³ More than 500 journalists, railroad executives, soldiers, politicians, and businessmen spent the weekend in the Utah desert when the Central Pacific and Union Pacific Railroads were joined by the strike of a silver sledge atop a golden spike. The ceremony gathered "from the four corners of the Union, and [...] the four corners of the earth," individuals collected under the "glorious old stars and stripes, an emblem of unity, power, and prosperity."²¹⁴ It was considered the "final triumph of the friends of the road over their croaking opponents," and the inauguration of a time when sunbeams would "fall on the iron rails which will stretch away in one unbroken line from the Sacramento to the Missouri Rivers."²¹⁵

Earlier that morning, before the arrival of the celebrants and photographers, "a dozen or so" Chinese railroad workers were performing tasks as they had for the past six years; grading land, laying ties, and driving spikes, preparing the last few sections of road for the pomp and circumstance that would soon engulf the scene.²¹⁶ These workers, who had been pushed to 12-

hour workdays near the end of the line's construction were crucial to insuring that the ceremony would go off without a hitch. Since the railroad executives who were tasked to "drive" the last spikes of the railroad as part of the celebration were "amateurs" in terms of the physical strength required to construct a railroad, they would no doubt have difficulty "starting the spikes" so the Chinese workers partially drove the spikes that were to later be met with a silver hammer, followed by jubilant cheers of celebration.²¹⁷ Before the Central Pacific's wood-burning Jupiter engine met face-to-face with the Union Pacific's coal-burning Engine 119, the Chinese workers were hurried away to further western parts of the line for improvement. By the time the flashbulbs burst and the event was noted in a moment of national celebration, there were no Chinese workers to be seen, and subsequently no photographic documentation of their presence at a moment of great triumph for American civilization. The ceremony would be celebrated and remembered for the victory of businessmen, politicians, and engineers, over the vast terrain west of the Mississippi, neglecting the labor that made the ceremony, and the line, possible.

Once the spikes were driven, "arrangements had been made by which the large cities should be notified of the exact minute and second when the road should be finished."²¹⁸ This took place by "telegraphic communications" connected to the "principle cities" so to inform the citizens the moment their great national project had been completed. The "solid silver" hammer, held by President Stanford of the Central Pacific, was attached via the handle to telegraphic wires, "and with the first tap of the gold spike [...] the news of the event [flashed] over the continent."²¹⁹ Indeed, these celebrations not only marked the completion of the road, but the beginning of a new era in national progress.

In many ways, the completion of the transcontinental railroad and its ensuing celebrations designated a crucial step forward in the development of the young nation. In 1856,

Representative James Denver of California presented a report to the United States House of Representatives claiming, “the necessity that exists for constructing *lines of railroad and telegraphic communication* between the Atlantic and Pacific coasts of this continent is no longer a question for argument; it is conceded by everyone.”²²⁰ For Representative Denver, securing the western portions of the United States was of the “greatest importance,” and a goal that could be “accomplished only by direct and easy communications through our own territories.”²²¹

Railroads, Denver believed, would furnish this goal. Should the project of the transcontinental railroad be successful, “the vast extent of the country” would become open to settlement.²²² Land previously considered “barren” would “yield bountifully” for farming, increasing the value of previously worthless plots. Denver argued the “proposed roads” would bring “every part of the country” into connection with each other.²²³ He was not alone in urging the United States government to release these lands for the development of communication routes. The transcontinental railroad was also supported by then-Secretary of War Jefferson Davis in his 1854 report urging congress to consider the benefit of developing railroads in an effort to more easily supply troops stationed in the west, compared to the slow and indirect maritime route previously used.²²⁴ By 1860, railroad support was so widespread, the Official Republican Platform of that fateful election year stated, “that a railroad to the Pacific Ocean is imperatively demanded by the interests of the whole country” and “the Federal Government ought to render immediate and efficient aid in its construction.”²²⁵ In a rare moment of ascent, the Democratic Party platform of that same year resolved, “one of the necessities of the age, in a military, commercial, and postal point of view, is speedy communications between the Atlantic and Pacific states” made possible by constructing “a railroad to the pacific coast, at the earliest practicable period.”²²⁶

In the eyes of lawmakers and businessmen pushing for the completion of the transcontinental railroad, *communication* was a major key to national security and progress. According to the *Oxford English Dictionary*, a definition of communication in use during the nineteenth century was “access or a means of access between two or more persons or places; the fact of being connected by a physical or practicable route.”²²⁷ In other words, communication—the access between people and places—was made possible by the physical network of the transcontinental railroad. It is not that steam-powered communication and the transcontinental railroad are synonymous or interchangeable. Rather, they are inextricably entwined; without the transcontinental railroad, there would be no means of access (and thus no communication) between the coasts. Accordingly, without the desire for access, security, and commerce between people or places, the transcontinental railroad would have been an unnecessary undertaking.

Communication became a central problem in nation building as territorial claims multiplied and white Americans migrated west. Since the discovery of gold in California in 1849, U.S.-held states and territories in the west were presumed to be rich with gold, silver, and other valuable resources. However, these resources were distanced by thousands of square miles in between about which legislators in the East knew relatively little, aside from their being populated by Native Americans often believed to be hostile and imminent threats to American security and prosperity. Communication, or access to that vast extent of country and its rich resources, would be a means of not only taking better stock of the land, but also securing that land and the Pacific coast from pillage and foreign or domestic hostility. Communication would help provide a solution for two of the biggest problems facing the young and growing nation: economic prosperity and national security.

In this chapter, I argue that the project of nation building and expanding American civilization via communication during the nineteenth century required the simultaneous presence and removal of “uncivilized” land and bodies. In other words, the perception of “savage Indians,” and “barren” or “treacherous” terrain was presented as an obstacle to communication that justified the necessity of constructing the routes. As a result, communication was then retroactively applied as a means of parsing the civilized and uncivilized. The role of communication in establishing this distinction is not new for scholars of rhetorical theory. Rhetoric and communication specifically have been used to designate the border between what is perceived as “civilized” and what is cast out as “barbarous” and “savage” and has often been attached to colonial and racist sentiments. Indeed, at times the pursuit of civilization, and in this case communication, has been littered with barbarous acts. From this critical perspective, a central problem for scholars of communication comes to the foreground when considering how communication is historically implicated in the imperialism of western expansion and the violence enacted against bodies and the land.

As such, this essay begins with a brief literature review examining how rhetorical theory has imagined and justified the relationship between communication, civilization, and savagery. Using this lens, I provide a critical reading of popularized tourist guides for the way in which the relationship between civilization and savagery was maintained utilizing communication via the transcontinental railroad. These guide materials were written for the future tourist, potential emigrant, or armchair traveler, narrating the process of steam communication between the Atlantic and Pacific oceans. In so doing, these artifacts present a narrow and specific understanding of the west’s history, present, and future, contingent upon a relationship where the distance between civilized and uncivilized is maintained by the presence of communication. In

my analysis I focus my attention towards public discourse surrounding the railroad, which was structured around a chronological division of time reflecting distinct periods *before* and *after* the Last Spike Ceremony—in other words a time when “savagery” dominated the west, and a time when (white) civilization and progress was justified by a national project of communication. By structuring my analysis in this chronological scheme, the role of communication in constituting the nation from barren and wild to civilized and hospitable becomes apparent. Indeed, the role of communication in justifying and rationalizing the destruction of the land and the murder of Native peoples in the American west becomes apparent as well. In reading the texts in question, I focus on the shifting understanding of the land itself, the transformation of towns, and the representation of the Native American before and after the Last Spike Ceremony in May 1869, a moment in which the west was forever changed by a “perfect system” communication.

Communication, Civilization, and Savagery in Rhetorical Theory and History

From the *polis* forward, communication has been embedded with civilization. The Athenian city-state was a place defined by freedom and equality, where men gathered as citizens, distinguished by Aristotle as “political animals,” *zoon politikon*, capable of deliberation and democratic governance. Training in rhetoric gave citizens the skills necessary to participate in the life of the social and the political, and to make decisions that would govern life within the walls and determine action against those who lived outside them.²²⁸ According to Hannah Arendt in *The Human Condition*, the two activities most vital in constituting and distinguishing *zoon politikon* from savages or barbarians were “action (*praxis*) and speech (*lexis*), out of which rises the realm of human affairs [...] from which everything” belonging to the nature-governed barbarians was “strictly excluded.”²²⁹ To “live in the *polis* meant agreeing that collective decisions were reached through words and persuasion rather than force and violence.”²³⁰ In this

sense “everybody outside the *polis*—slaves and barbarians—was *aneu logou*, deprived, of course, not of the faculty of speech, but of a way of life in which speech and only speech made sense and where the central concern of all citizens was to talk with each other.”²³¹ In other words, whereas disagreement was resolved in the *polis* through speech and communication, “violence and force” were justified outside the city-state because it was “the only means to master” the necessity and natural order that governed the lives of anyone not considered a freed man.²³² Though the democratic life of the *polis* and the need for skilled orators waned under the force of Roman Imperialism, the relationship between communication and civilization remained. Importantly, so did the belief that savages and barbarians, deprived of education and culture, were incapable of communicating artfully or intelligibly.

In the *Second Treatise on Government* (1689), John Locke distinguishes between the civilized and the savage through his description of political power and despotical power. Political power emerges from communication via contracts, agreements, and rational argument, which men find “conducive to the preservation of [himself], and the rest of mankind, [...] the members of that society in their life, liberties and possessions.”²³³ Importantly, political power is not “an arbitrary power over [their] lives and fortunes [...] but a power to make laws, and annex such penalties to them, as may tend to the preservation of the whole, by cutting off those parts, and those only, which are so corrupt, that they threaten the sound and healthy.”²³⁴ Political power is founded upon similar conditions to that of the *polis*: “compact and agreement, and the mutual consent of those who make up the community.”²³⁵ As such, political power is tied to civilization because it stresses that in order for a civil society to be successful, man must have the ability to think rationally and deliberate on actions that benefit the whole, which means in many cases being able to put aside and overcome “natural” urges or desires that would lead someone to

violence or force. Contrary to political power is despotical power is exercised by individuals living in a state of nature with which “mankind can neither have society nor security.”²³⁶ Despotical power is “an absolute, arbitrary power one man has over another, to take away his life, whenever he pleases.”²³⁷ Someone inclined towards despotical power evades communication’s dependence upon rationality as they abandon “reason, which God hath given to be the rule betwixt man and man.”²³⁸ Without reason, so privileged under political power, the exerciser of despotic power has “made use of the force of war,” in the name of “unjust ends [...] where he has no right.”²³⁹ “So revolting from his own kind to that of beasts,” the despotic individual “renders himself liable to be destroyed by the injured person, and the rest of mankind, that will join with him in the execution of justice, as any other wild beast, or noxious brute.”²⁴⁰ Locke poses that communication, or agreement, is impossible with a despotic individual because “what compact can be made with a man who is not master of his own life” and is instead ruled by forces of nature.²⁴¹

David Hume’s essay *Of the Standard of Taste* (1757) distinguishes between civilized society and its “barbarous” opposite on the grounds of superior versus inferior tastes. Hume’s overarching project, and many of his Enlightenment contemporaries, is to establish standards to reconcile “the various sentiments of men” with a goal of “confirming one sentiment, and condemning another.”²⁴² Put differently, Hume contends that every man and every society has an understanding of things that are beautiful, elegant, and moral. The problem arises when it comes to actually pointing to something that is beautiful, and finding the unanimous agreement vanished.²⁴³ This sort of subjectivity, for Hume, cannot hold as it bodes poorly for judgments of more serious questions of morality. Hume’s solution is establishing an authoritative role with objective standards to adjudicate these differences. To guide these standards, Hume advocates

for “touchstones,” works whose superiority is evident cannot be disputed, and “ideal critics,” individuals whose judgment is “more sensitive and knowledgeable, and who therefore can make superior decisions regarding matters of taste.”²⁴⁴ Importantly, touchstones and ideal critics reduce relativism and by applying judgment based on experience—because they have seen many beautiful, elegant, and moral objects, which has thus refined their own tastes, they are capable of adjudicating and rationalizing what is considered good and right. To make the case for a standard of taste, Hume discusses the *Alcoran*, an early Western translation of the *Qur’an*. Following the pattern above, Hume concedes that many of the book’s followers “insist on the excellent moral precepts interspersed throughout,” which can be compared to English words meaning “equity, justice, temperance, meekness, [and] charity.”²⁴⁵ However, Hume argues that we should not take these sentiments on face value and we cannot assume these “moral precepts” are in fact moral at all. Playing the role of the ideal critic, Hume demonstrates the text falls outside of acceptable “morality” by accusing the “pretend prophet,” under the guise of a “just sentiment of morals,” of praising “treachery, inhumanity, cruelty, revenge, [and] bigotry,” things Hume claims are “utterly incompatible with civilized society.”²⁴⁶ Importantly, this not only removes a non-western text like the *Alcoran* from the possibility of being revered as a “touchstone,” but the “admirers and followers” of this book are those moved by actions that fall outside the purview of civilization—actions that are much more aligned with characteristics of *aneu logou* and despotical power. The implication of this meant could be no moral accord with these followers as their behavior was modeled on an ethically dubious text. Further, it meant their violent or “uncivilized” actions could be explained by an adherence to a false touchstone.

In 1873, four years following the Last Spike Ceremony, Hugh Blair’s *Rhetoric and Belles Lettres* was published in the United States for the first time.²⁴⁷ Blair, who was a defender

and supporter of David Hume, wrote lectures focused on perfecting communication through perfecting communicators, akin to Hume's ideal critics. A person who was skilled in rhetoric was one who could clearly and precisely communicate with the public using a combination of sound logic and an aesthetic sensibility that made the message appealing, as if it had originated in the mind of the hearer. Similar to Hume, he called this sensibility "refined" or "delicate" taste, and the "grand art" of communication was to cultivate and practice this form of eloquence.²⁴⁸ This acquisition was, for Blair, a product of taking what he claimed was a universal, natural *capacity* for taste, and enhancing it through education and culture—things that defined civilized societies from the "barbarous nations." Blair believed that good and refined taste would develop through further investments in culture and education, and would subsequently improve the conditions of civilization. However, this universal and natural capacity for taste, and thus the groundwork for improving civilization could never be realized by members of those "barbarous nations." For Blair, the proposition that the "taste of a Hottentot or a Laplander" was "as delicate and as correct as that of a Longinus or an Addison," was impossible.²⁴⁹ In fact, notion that the taste of a "Hottentot" and that of an "Addison" be "equally good and true," was for Blair an "absurd paradox" for two primary reasons.²⁵⁰ First, he claimed, because the former group lacked access to the type of education or culture that would refine an individual's tastes towards delicacy. Blair's very narrow idea of education and culture was something that only existed in the western world. That is not to say that education and culture did not exist elsewhere, but for Blair it would not help and individual cultivate refined taste. Second, and related to the first reason, Blair believed that in such "barbarous nations," "taste has no materials on which to operate."²⁵¹ In other words, because there were no "tasteful" artifacts produced by those cultures, those groups would not be acquainted with the qualities that made something beautiful or

aesthetically pleasing. Thus, without any cultural touchstones, or a place where those touchstones were taught, “barbarous nations” were relegated to outside of civilization, incapable of cultivating the “grand art” of communication and adjudicating the good and the beautiful.

In Western thought, communication has a history and deeply rooted relationship with civilization, and specifically the idea of its improvement or perfection. During the nineteenth century, advocates for communication via railroad and telegraph held similar ideological commitments. In 1852, Senator Charles Sumner of Massachusetts was one of many who argued in favor of “Congressional aid for internal improvements in the west,” of which rail communication was a primary feature.²⁵² Sumner claimed the benefits that would arise “from the extension of railroads, and the consequent advancement of school-houses, civilization, and religion,” would guarantee “the extension of the power and glory of the Union.”²⁵³ An 1864 article titled “The Railroad Bill” from the *Bangor Daily Whig & Courier*, commented on the role of the railroad in “extending the facilities of communication, commerce, manufactures, and agriculture, increasing [the west’s] population and wealth, and advancing the nation in civilization and power.”²⁵⁴ In his 1872 travel guide, George A. Crofutt praised the railroad and the telegraph as the “twin sisters of civilization.” In this sense, the railroad and telegraph were not just products of civilization as great communication technologies, but transmitters of civilization as well—where communication spread, civilization flourished. In other words, once the hammering of the silver spike connecting the last set of railroad ties signaled the telegraph spreading the news of the completed task, there was an unbroken line of communication--and thus civilization stretching from sea to shining sea.

A second common theme accompanying both the rhetorical history and the railroad advocates was a belief that advancing civilization through communication meant casting out

what was uncivilized. In the vastness of the west, “uncivilized” was witnessed not just in the harsh terrain that was made suitable for agriculture and civilized settlement, but it was also attached to bodies that occupied those spaces. Vagrants and “unlawful” Mormons populated small towns existing in the west prior to the arrival communication and civilization, whereas the remainder of the vast landscape was home to tribes of “hostile” or “savage” Native Americans who needed to be removed to reservations or killed in order for the passage to be rendered “safe” for communication routes to be built. Indeed, it was the establishment of the transcontinental railroad which intensified the rapid dispossession of Native American claims to lands in “Indian Territory,” ensuring their slaughter or removal away from lands most desirable for steam communication. Legislation aimed at encouraging the completion of the railroad manifested in bills such as the Kansas-Nebraska Act (1854), which in addition to its impact on the question of slavery “began the process of dispossession of Kansas Indians through a series of new treaties meant to open a rail route along the Great Overland Trail and open Kansas to settlement.”²⁵⁵ The Pacific Railroad Act of 1862 conferred upon the officials and workers of the Union Pacific Railroad “the right, power, and authority” to take possession of the land required for the construction of the road extending two hundred feet bordering it on either side.²⁵⁶ This process extended governmental powers to railroad workers who were given authority to “extinguish as rapidly as may be the Indian titles to all lands falling under the operation [of this act] and required for the said right of way” of the transcontinental line.²⁵⁷ Legislative acts such as these effectively removed Native Americans from lands intended for railroad development, or turned said land into an open hunting ground where force and violence against Natives was permitted and encouraged, consequently making Native American engagement with this particular form of communication and the nation impossible. Importantly, this sort of permission directly connected

communication as a warrant for violence and slaughter. Once Native Americans were effectively removed, the land itself could then be transformed through jacks, hammers, and dynamite, in the name of communication. Topographical features, such as the Rocky Mountains were, like the Native American, no longer obstacles to communication between the Atlantic and the Pacific.

The next section of this chapter looks in greater detail at the relationship between the national project of communication, and the border between civilization and savagery. Specifically, I position my analysis chronologically, coordinating with a time prior and following the Last Spike Ceremony of May 1869. Through this organization, it becomes clear that the “civilizing force” of communication required the “wild” and “uncivilized” features of the west to be both present *so they could be eradicated* in fulfilling the necessity and importance of communication.

A View of the Past from the “Comfort and Safety” of the Transcontinental Railroad

Following the completion of the transcontinental railroad, guidebooks and tourist itineraries “aimed at people willing to immigrate to America or relocate within the country,” were composed of “descriptions intended to influence investment, migration, settlement, and general travel.”²⁵⁸ According to rhetoric scholar Gregory Clark, published itineraries like these became “part of the process through which diverse peoples inhabiting an expansive landscape were learning to identify themselves individually and collective as Americans.”²⁵⁹ “Touring in America,” Clark states, “even if done vicariously through the accounts of other American travelers [...] is an important mode of civic education that transforms individuals into citizens.”²⁶⁰

Landscape historian Herbert Gottfried claims that following the Civil War, the most “prolific author/publisher of guidebooks was George A. Crofutt who made a career of producing

guides for settlement and tourism related to the trans-Mississippi West.”²⁶¹ His first book, *The Great Trans-Continental Railroad Guide*, “described places between Chicago and Baker, California,” and “appeared at a time when Americans expected to get information that makes one part of a country known to another.”²⁶² While Crofutt’s guide was keen to attract investors concerned with financial opportunity, “they also had way-finding aids for people who had no perceptual experience of western space” by giving “directions and locations,” filling “the great spaces between the coasts with names of things and orientation devices.”²⁶³ Thus, if there were a means for people living east of the Mississippi river to have access to, or *communication with*, the west it was through the eyes of these sorts of narrated itineraries.

As Gottfried and Clark suggest, travel guides could not be severed from the infrastructure of the road itself and thus served an important role in this national enterprise through providing education as well as a way for Americans to identify with portions of their country and citizenry they had never seen. These guides not only allowed the reader to become acquainted with an experience of riding along the railroad, but to approach the entire system for its role as a national project encouraged to help spread civilization. After all, if the railroad were to be profitable, these guides needed to convince people living in the east of the importance and benefits of the massive public investment in constructing these lines of communication, and one of the greatest benefits to arise was the extension of civilization into the west, making it more hospitable to the migration of commerce and community.

To reiterate George Crofutt’s phrase, the railroad and the telegraph were the “twin sisters of civilization” and thus crucial to the progress of the nation—a sentiment that was certainly supported by early arguments in the railroad’s favor. To recall the epigraph for this chapter, in 1851, *The Report of the Superintendent of the Census* included a special section on the state of

railroads in the United States “including the prospects for a Pacific railroad.”²⁶⁴ The report further illustrates the significance of advancing communication in line with the progress of civilization, stating,

In no other particular can the prosperity of a country be more strikingly manifested than by the perfection of its roads and other means of internal communication. The system of railroads, canals, turnpikes, post routes, river navigation, and telegraphs, possessed by the United States, presents an indication of its advancement in power and civilization more wonderful than any feature of its progress. In truth, our country in this respect occupies in the first place among the nations of the world.²⁶⁵

In other words, communication became both the tool for spreading civilization as well as an embodiment of civilization’s ideal. Indeed, the various tourist guides produced following the Last Spike Ceremony do more than simply narrate a route; they narrate the spread of American empire, reforming the untamed and wild region to one suitable for civilized man to live.

Tourist guides served as integral to communication infrastructure and they relied upon an ability to make clear the line between what was civilized and what was uncivilized in the unfamiliar west. To make the case for the civilizing mission of the railroad, the guides included narrative histories illustrating the wild and untamed state of the west prior to the arrival of communication and the transcontinental railroad. This provided the reader with an accessible and safe encounter with the uncivilized space making clear the necessity for the civilizing force of steam-powered communication. These histories rely on a common trope emphasizing a state of nature, focusing on the “wildness” of the west, the extremities of the terrain, a lack of order, and a region plagued by insecurity and violence, where settlers were constantly at risk of being attacked and murdered by “savage Indians.” The “stern necessity” of communication for

“securing, by iron bands, the fair dominions of the West from foreign or domestic foe” becomes starkly apparent through each of the guides.²⁶⁶ It is clear the transcontinental railroad’s purpose was not solely to protect against invasion from Asiatic countries, but with primarily addressing the “Indian problem” of native hostility and resistance to the steady stream of white settlers from the east.²⁶⁷ Through emphasizing the condition of the west prior to the lines of communication, the civilizing force of the transcontinental railroad becomes much more significant.

Near the beginning of his guide, Crofutt’s guide illustrates a “brief history” of the west prior to the era of steam communication.²⁶⁸ The territory itself was a “dim undefined mythical land, composed of chaos and the last faint efforts of nature to render that chaotic stage still more inhospitable and uninviting.”²⁶⁹ The “stage” displayed nature’s most intense and unwelcoming aspects, home to “barren deserts, dark, deep, and gloomy gorges, tremendous, rugged snow clad mountains, and the wild savage.”²⁷⁰ Given the “natural” scene of the west, it is perhaps unsurprising the region prior to the arrival of communication is closely associated with hostility and violence. Similar to the “barbarous nations,” those who succumbed to despotic power, or the individuals who were *aneu logou*, the west was characterized as a dangerous and perilous place. Given this history, Crofutt argued, the government was hesitant to “commence the great work” of the transcontinental railroad, citing “vast tracks of unknown country, inhabited by wandering, hostile tribes of savage nomads,” not to mention geographical challenges such as scaling “the snow-clad peaks of the Rocky Mountains with the fiery locomotive.”²⁷¹ In the 1877 guide *The Pacific Tourist: Williams’ Illustrated Trans-Continental Guide*, Henry T. Williams writes of earlier expeditions to the west that reported an area “entirely vacant, no settlement, entirely occupied by roving bands of Indians, and the undisturbed home of buffalo and antelope.”²⁷² Another guide titled *Where to Emigrate and Why* published in 1869 described the “vast plains

stretching away to the west from the Missouri River, the grand old mountains forming the vertebral column of the continent, and the wilderness intervening [...] remained almost a sealed book to the explorer and the historian.”²⁷³ The plains were “in the undisputed possession of wild and savage tribes, who roamed over them at will, inflicting barbarous torture and death upon those of the white race who had the temerity to invade their hunting-grounds or seek to occupy the soil.”²⁷⁴ Continuing, “the mountains rose like a giant barrier, frowning upon every effort to penetrate their grand and gloomy solitudes, while beyond lay a *terra incognita*, veiled in mystery and resting in the shadows of vague tradition.”²⁷⁵ Importantly, the “problem” presented by the west would, in part, be solved by tides of emigrants who would travel by rail to settle in the region and “redeem this country from its wild state.”²⁷⁶ Uninviting and wild nature was an obstacle to steam communication and thus securing the western territories of the nation from all hostile threats. This uncivilized, wild, and dangerous nature was tamed beginning with the land itself in an effort to allow communication to flow west.

As much as the natural land presented dangers and complications to the transcontinental line, untamed nature was also attached to the bodies occupying the western territory. Without question, the racist implications of this discourse relied upon the “savage” Native American being presented as the most significant obstacle to the project of refiguring the west. So presented, the Native Americans stood in stark (often depicted as defiant) opposition to the progress of civilization. Along the narrated journey, Crofutt pauses to divert attention away from the magnificence of the railroad to focus on a time (generally assumed in the not-so-distant past), when such progress was unimaginable or nearly impossible because of Native “hostility.” Crofutt recalled the stories of white settlers who were “murdered” by Native Americans, comparing them to “varmints” and “beasts.”²⁷⁷ For example, a Wyoming town named Hillsdale,

located in a “favorite hunting ground of the Sioux and Cheyennes (sic), who long resisted the attempts to move [to the] reservation,” was named for a Mr. Hill, an engineer who was engaged in the construction of the transcontinental railroad “killed near this place by the Indians” in brutal fashion.²⁷⁸ Later, upon the steam engine’s arrival at Fort Laramie, Crofutt draws attention to its history as a site of “several treaties between the savages and the whites.”²⁷⁹ Referring to the Treaties of Fort Laramie of 1851 and 1868 (which the United States blatantly violated shortly after their signings), Crofutt simplifies the complex history of this location, and relations with Native Americans generally, to one in which “savages” who settled “around the fort” were “fed by the Government and [stole] their stock in return,” presenting the Native American as an indecorous individual who could not be trusted nor appreciate the gifts or supposed hospitality of the United States.²⁸⁰ Additionally, each guide went to great lengths to characterize the “savage Indians” with colorful depictions. At the end of his guide, Crofutt calls the Native, “lazy, filthy, and too mean for fish bait.”²⁸¹

To ease the traveler, however, these incidents always took place during a time before the arrival of the railroad, regularly referred to as the “emigrant times” when stagecoaches and wagon trains were the only overland routes west. Often, the author pauses from narrating the delightful journey to draw the reader’s attention to a tract of land or a nearby town that served as the site of a bloody and violent altercation between Native Americans and white settlers or railroad workers to illustrate the danger the previously plagued the region. In an 1870 guide written by a railroad agent named Thomas Weed, a story is told of a “party from Arkansas” who were “surprised by hostile Indians while resting at noon, and instantly killed, with the exception of one of their number, who snatched up his rifle and retreated to the nearest cover.”²⁸² There, this settler “battled with all the energy of despair, killing several of the savages before being

dispatched by the arrows of his assailants.”²⁸³ Native American manners and propriety are constantly called into question, speaking to a deeper, unwavering nature, as he provides examples of wanton destruction of property and disregard for the lives of white settlers. In Williams’s 1877 guide, the encounters are understood from a perspective of financial loss and calculated as an “immense expense to the United States,” including the “indemnities constantly being paid by the United States for destruction of life and private property by Indians; also depredations of Indians on property in government service.”²⁸⁴ Elsewhere, Natives perpetuated a three-day siege on the cabin of Colonel Percy, a surveyor for the potential railroad, destroying his home in a fire-fight, an act described as disregard for the “progress” attempting to be made in the region.²⁸⁵

Recalling Arendt and Locke, because “barbarous” individuals outside of civilization were ruled by nature, force and violence were not only considered to be their means of making rule, but this meant force and violence were justified against the savage. This logic plays out in the construction of the transcontinental railroad when “the pick and shovel” (tools used for constructing communication), “were thrown aside, and the rifle and pistol substituted in their place,” transforming “peaceful laborers” into “little armies, ready to repel and punish the attempts of the savages to retard this great work of national improvement.”²⁸⁶ Williams details a particularly gruesome episode, which makes clear how Native hostility was portrayed not solely against the white settlers, but towards the transcontinental railroad, communication, and civilization, emphasizing the supposed innateness of this violence. In one particular episode of July 1867 “a train was ditched about four miles west of the above named station [...] by a band of Southern Cheyennes.”²⁸⁷ Importantly, the efforts by the Southern Cheyenne to “ditch” the train involved manipulating the communication infrastructure by lifting “the iron rails from their

chairs on the ties—raising only one end of each rail—about three feet, piling up ties under them for support, and firmly lashing the rails and ties together by wire cut from the adjoining telegraph line.”²⁸⁸ Once this trap was set for the oncoming train, “they retired to where the bench or second bottom slopes down to the first and there concealed themselves in the tall grass, waiting for the train.”²⁸⁹ Before the train, however,

A hand-car with three section men were sent ahead as a pilot. This car encountered the obstacle, and ran into the ravine, bruising and stunning the men and frightening them so that they were unable to signal to the approaching train. As soon as the car landed at the bottom of the ravine, the Indians rushed up, when the two men, least hurt, ran away in the darkness of the night—it was little past midnight—and hid in the tall grass near by. The other, more stunned by the fall of the car was scalped by savages as the knife of the savage passed under his scalp, he seemed to realize his condition partly, and in his delirium wildly threw his arms out and snatched the scalp from the Indian, who had just lifted it from his skull. [...] Their savage glee knew no bounds.²⁹⁰

As “wild savages,” violent, dangerous, and hostile to the construction communication, Native Americans represented for many railroad guides the greatest threat to extending civilization west.

While the racism on display in these popularized depictions is certainly apparent, even the white settlers in the region were understood as living outside the purview of civilization. Simple-minded, uneducated and often naïve, white settlers struggled to stay alive on stagecoach roads, while some settled in lawless towns, where justice was defined by vigilantism and vices proliferated. On several occasions throughout the journey, Crofutt draws the reader’s attention away from the tracks of the railroad to the “old emigrant road,” usually just in sight of the windows of the passing train.²⁹¹ The “old overland stage road” was marked by “decay and

death,” referencing the hardships of routes like the Oregon Trail, whereas “life, energy, and growing strength” characterized the new emigrant’s path along the transcontinental railroad.²⁹² The emigrants who traveled this “old” road during the “‘Whoa haw’” times from 1850 until the arrival of the railroad, “toiled” along the journey from their “native land of woods, rocks, churches and schoolhouses to seek a home” shared with “the savage, the wild beast, and all unclean things.”²⁹³ If an emigrant elected life in towns opposed to the path of homesteading, they resided in places like North Platte, filled with “gamblers, and the roughs, and the scallywags,” who took advantage of “hard working, foolish men enough in the town to afford them an easy living.”²⁹⁴ While North Platte “began to decay,” Crofutt claimed the vagrants moved along “until some of their more numerous victims turned on them and [...] arose in their own defence (sic), binding themselves together, a la vigilantes, [...] took the law into their own hands, and hung [the vagrants] to the first projection high and strong enough to sustain their worthless carcasses, until they ‘went dead again,’ and the country was rid of their presence.”²⁹⁵ Julesburg, a town near North Platte was, “during the ‘lively times,’ [...] the roughest of all rough towns along the Union Pacific line.”²⁹⁶ Julesburg was a place where “morality and honesty clasped hands and departed” long ago, though many had “doubts about their ever having been there” in the first place.²⁹⁷ Typical of several of the older and lawless towns of the west, Julesburg was a place where “gambling and dance houses constituted a good part of the town,” responsible for luring men away from lives of temperance and towards temptation.²⁹⁸ In Nelson’s Union Pacific Guide, Cheyenne, which would soon become one of the most celebrated accomplishments of the spreading civilization, was “once a rough (a very rough) place,” whose “prominent citizens would not have been deemed pleasant companions by you or us.”²⁹⁹ As the itinerary presses onward towards the Pacific Coast, the eastern audience was exposed to a part of the nation with

which they had little experience or knowledge. In many ways, tourist guides guide achieved not only the goal of narrating the route to the west, but orienting his audience to a particular history of the region that was outside the purview of civilization. Importantly, these representations of the west as a place where dangerous landscapes, savagery, and vice proliferated, made the need for the civilization carried by steam communication that much more crucial to the development of the nation.

Communicating the “New West” from the Transcontinental Railroad

By presenting an historical west through the railroad itinerary, both the land and its inhabitants are essentialized so they exist in an uncivilized state of nature, where communication is not only impossible, but desperately needed so the nation’s Manifest Destiny could be secured. Once the threat of hostile nature was removed the west would at last be hospitable to the effective, safe, and permanent expansion of American civilization. In other words, there is a pivot point between the wild and untamed nature that existed in all forms prior to the arrival of the transcontinental railroad, and the civilizational progress and culture that followed. Steam engines via steam communication, marks this distinction. Commenting on the significance of this accomplishment, Fredrick R. Goddard wrote,

The world has watched its progress with looks of amazement and awe, startled by the facility and rapidity with which the great mountain barriers have been crossed; and marveling how our young Republic—still staggering under the effects of a terrible civil war—could display such wonderful recuperative energy and strength. And now that the silver hammer has driven the golden spike, and the great enterprise is completed, amid the rejoicings of the nation, we can not resist the conviction that the future of this road will have an important influence upon the whole civilized world.³⁰⁰

For railroad companies, supporters, and their various agents, the Last Spike Ceremony on May 10, 1869 was a moment in which a completed network of communication marked the beginning of a new era of civilization for the United States and subsequently the world.

Unsurprisingly, the success of the railroad is attributed to men of enterprise and legislature, and their wisdom in embarking upon the great project—neglecting entirely to mention the scores of Chinese and Irish laborers who lived and died during the construction of the route. Upon completion of the line Crofutt was convinced it was impossible to “fail to appreciate the enterprise which characterized the progress and final completion of this road, the longest in the world, and its immense value to the Government, our own people, and the world at large.”³⁰¹ Aside from the pride of ownership, the grandeur of the railroad was in itself a point of identification for Americans. Indeed, the transcontinental railroad was unrivaled in terms of its scope and magnificence. Comparing it to other well-known and similar engineering feats, only the “5,000 miles of English railway in India [...] and the completion of the Suez Canal [are] equaled by the construction of the great Union and Central Pacific Railroad across our continent.”³⁰² Williams’ guide presented the country’s “grandest scenery” bordering the railroad’s “magnificent pathway” and the nation’s “most popular route of pleasure travel.”³⁰³ “Along these iron lines,” Williams claimed, “the monument of financial intrepidity and daring engineering skill, there is opened a new West, a continent of itself, richer in wealth than in the most sanguine of hopes.”³⁰⁴ The new West, in which changed “the entire commerce of the world” was now home to “industries [...] which were never expected or dreamed of by the projectors,” as well as “the richest of mineral discoveries and the most encouraging of agricultural settlements.”³⁰⁵ The new West was welcoming and hospitable to the “tide for travel from the European and Asiatic countries, and the distant isles of the Pacific Ocean” as they

crossed the “American Continent” with far greater speed and safety than previously imagined.³⁰⁶ Not to undersell the dramatic nature of the accomplishment, Williams, speaking for a traveler who had just completed passage over the “magnificent route,” proposed that the transcontinental railroad was indeed “the grandest wonder of the nineteenth century!”³⁰⁷ The ingenuity and uniquely American enterprising spirit attached to the completion of the railroad certainly positioned it as a touchstone of progress and a hallmark commemorating the United States’ position as a leader of the civilized world.

Indeed, this was a new era in the United States; a post-steam communication era in which white citizens’ national identity was shaped and informed by not only knowledge of the vast extent of the nation that now securely belonged to them, but unobstructed, safe access spanning from sea to shining sea. As such, future travelers needed to be reassured of their safety, especially given the particular historical lesson their reading materials provided. The historical accounts of the dangerous migration routes of the past are contrasted throughout the present journey in the magnificence, comfort, and safety of the transcontinental railroad. Whereas emigrants once “toiled” along the stagecoach routes utilized less than twenty years earlier, steam communication now afforded “ease and comfort” of the passenger cars “equally grand and magnificent” as the railroad itself.³⁰⁸ Unanimously, guides reassure the future traveler not just of the safety of their journey, but the comfort and enjoyment of the train ride itself. A journey previously reserved for only the hardy, was now suitable for women and children. An 1875 published “traveler’s letter” remarked upon the comfort experienced as though the passenger could have been in his parlor, sharing his “splendid sleeping car” with a “jolly lot of passengers.”³⁰⁹ Another letter, written by a young woman who emigrated with her family from New York to Sacramento in 1876, commented upon the safety and “protection from danger” she

and her family experienced while enduring their ten-day journey across the nation.³¹⁰ Henry Williams' 1877 guide highlights the particular comfort and safety ascribed to the Pacific Railroad commenting,

In no part of the world is travel made so easy and comfortable as on the Pacific Railroad. To travelers from the East, it is a constant delight, and to ladies and families it is accompanied with absolutely no fatigue or discomfort. One lives at home in the Palace Car with as much true enjoyment as in the home drawing room and with the constant change of scenes afforded from the car window, it is far more enjoyable than the saloon of a fashionable steamer.³¹¹

Because communication and civilization were so closely entwined in the project of the transcontinental railroad, it is unsurprising that passengers would experience comfort, luxury and refinements of civilization along their journey. The Palace Cars, dining options, and luxury presented by the railroad encouraged a class of citizen who would be made content via the mobilization of the comforts afforded by established cities and railroads of the Eastern United States. These citizens were encouraged to identify as citizens not just of their expanded homeland, but the world. Indeed, for the railroad to be successful, it needed to appeal to individuals who could invest financial and social capital in the new enterprise.

Thus, individuals traveling west now included a new class, the pleasure seeker and tourist who could afford the time and expense to leisurely enjoy oneself, forgetting everything “but the journey” itself.³¹² Indeed, the ability to enjoy simply the experience of traveling was considered “the secret of having a good time, generally.”³¹³ To be certain, words like “enjoyable,” “pleasurable,” or “luxury” were not used to describe the “old emigrant road” of stagecoaches and horseback. For this new type of traveler, the landscape was no longer dangerous and uninviting,

or the site of violent encounters, but was “scenery,” intended to be enjoyed, delighting and impressing the tourist with natural beauty.³¹⁴ Once in Colorado, for example, Crofutt appealed to the potential traveler, describing a “morning scene of glorious beauty [...] such as one rarely sees in any clime, for nature, in her wildest moods, has never excelled her handiwork here, a panoramic view of which now lies before us.”³¹⁵ Specifically, he showcased a uniquely American experience of touring as “nowhere within the range of European travel can such scenes be found—so full of beauty, sublimity, and inspiration.”³¹⁶ Thomas Weed’s guide describes scenery that “mingles the grand with the beautiful” as the “rays of the sun added brilliancy to the landscape and tinged the mountain peaks with gold.” As the train coursed through the Rockies, “all were pointing out objects of beauty and grandeur” as “scenes awing, grand, and beautiful passed before us.” Describing “the weight of the rails, and the solidity of the track, and the ease with which the locomotive moved [the] heavy train in this wild region of mountain canons and peaks,” makes clear the relationship between the train itself and the bounty of scenery presented to the passengers.³¹⁷ In many ways, then, communication made possible the idea of pleasant landscape in the American west.

However, the safe journey was not the only thing potential travelers required to feel protected in their new nation. Specifically, in the process of completing the transcontinental railroad Native Americans residing in the Great Plains were either killed with impunity, or removed to reservations where they were coerced into adopting American dress, agricultural practices, and religion, through contact with and often forced education by white settlers. As such, for communication to the west to be successful, it not only required the transformation of the land, but it required there be no “savages” either. Even Natives who were “reformed” could not unshackle their designation as dangerous or malevolent. In Thomas Weed’s guide, he

described an encounter with a tribe of Shoshones. He explained, “a more stolid, degraded, filthy, thievish looking set of vagabonds in human form we had never seen.”³¹⁸ Noting that the “specimen of the noble ‘red man’” was a ghost and “‘played out’” where a “mere remnant is left, half brute, half savage, lingering in a greatly modified human form.”³¹⁹ Even Native Americans designated as “allies of the United States Government” remained outside the purview of civilization. Nelsons’ guide discussed the Pawnee Indians who, though allies, are still “genuine Indians, who lived by hunting and take pride in getting scalps.”³²⁰ Though they “probably consider themselves civilized, for each carries a revolver in the belt strapped around his waist,” they remained “staunch adherents to old traditions” of “huts” with “poles stuck into the ground, and from the tops of these poles wisps of hair flutter in the breeze, [...] triumphant trophies severed from the scalps of conquered enemies.”³²¹ In describing these new towns where “hundreds of thousands of hardy emigrants, with their horses, cattle, sheep, and domestic animals” thrive, Crofutt presented “savages” as “among the things that have ‘moved on,’” framing their removal as a matter of choice rather than force, as if they had surrendered to the pressing tide of civilization.³²² In the chance that Native Americans were encountered along the line, Crofutt was not remiss in justifying the use of force against them. To “fight an Indian,” was a pastime on par with “hunting, fishing” or other activities the “tourist would enjoy [...] to his heart’s content.”³²³

Once the railroad was constructed, a primary way the providence of civilization was guaranteed was through the establishment of towns along the route, often referred to as “company” or “rail” towns. Locations where “less evidence of civilization” was visible, were locations where the railroad did not venture; whereas places “in connection with the railroad” was where civilization sprung forth, furthering a literal connection between the railroad and

civilization itself.³²⁴ Indeed, the presence of the railroad changed the experience of the nation's geography, bringing into closer reach places that were previously a dangerous, months-long journey away. What soon became "the central portion of our commonwealth was then the far, far West," illuminating the way in which steam communication made possible a sense of closeness and intimacy which fostered a larger national community and identity.³²⁵

To be certain, part of being able to "feel at ease" on the journey west was through a recognizable character of the towns through which the train passed. Thus, an additional marker of civilization guides attached to the project of the transcontinental railroad was the way in which these towns, states, and territories civilized around the arrival of the railroad. Given the nature of the travel itinerary, guides often note each stop along the line, and while some receive only a short mention (such as mail depots), others operate as model cities and places with identifiable luxuries and comforts for people traveling from the east. Additionally, towns were no longer populated by vagrants, but rather welcoming, well-mannered and "civilized" citizens with whom the traveler from the east could easily identify, sharing American values and ideals. Importantly, this progress is directly attributed to the transcontinental railroad. For example, because of the railroad, Nebraska is a place that can no longer be spoke of as the 'far west,'" but rather is now "one of our central states."³²⁶ "With the grandest railroad on the continent traversing her entire breadth," bringing "all the resources of commerce at her command," Nebraska was "opened up to the world" through the arrival of the railroad.³²⁷ Specifically, Crofutt discusses the history of Omaha, which in 1864 "contained less than 3,000 population, mostly a trading people."³²⁸ With the "inaugurating of the U.P.R.R. [...] the growth of the city has been almost unparalleled," populated with shops, hotels, restaurants and other "evidences of continued prosperity and future greatness."³²⁹ Williams' guide also makes note of Omaha, a "city

of the first class.”³³⁰ In 1875, Omaha’s population reached 20,000, a five-fold increase “due almost wholly to the location of the Union Pacific railroad, and from the fact that this is the initial point and eastern terminus of the road.”³³¹ Comforts and luxuries for the traveler punctuated much of the journey and transformed unknown locations to significant evidence for the way in which the railroad ushered in civilization’s material artifacts—fine dining, well-lit streets, and comfortable hotels, for example. At Gibbon, since the completion of the line “48 buildings have been erected, which include stores, hotels, school-houses, and dwellings,” all of which were attributed to the arrival of the railroad in that area.³³²

These towns and outposts of civilization provided concrete and irrefutable evidence of communication’s benefit and necessity. Goddard’s guide described the “rapid progress westward of the Union Pacific Railroad” and the accompanying growth of cities and towns as “magical,” and more magnificent than the “miraculous creations of Aladdin with his wonderful lamp.”³³³ “Wherever a temporary halt occurred in the work of track-laying,” a “busy settlement” would suddenly flourish in a place “where perhaps yesterday only prairie and meadow were to be seen.”³³⁴ In Laramie City, Crofutt praised “the [railroad] company, following on their general plan of buildings along the road at all important stations” for having “erected a magnificent hotel as fine as can be found along the whole length of their line.”³³⁵ Continuing, he claims it is “in fact [...] the largest and finest hotel of the many they have built—and is kept by those who spare no pains to make their guests feel that ‘it is good to live.’”³³⁶ In addition to Laramie, Goddard draws attention to Sherman, Benton, Green River, and Bear City as “other flourishing settlements” which mark “the advance of the Union Pacific.” Indeed, in order to establish a sense of security in the west, towns such as Laramie and Omaha stood as important examples of the potential for civilization to thrive in the previously unwelcoming and dangerous west. Goddard

referred to towns and cities such as these as “*avant couriers* of civilization and development,” and a promise that so far as the line continued, “thriving towns and cities [were] destined to spring up and contribute bountifully to the way-traffic of the road.”³³⁷ Communication, in this way, was a means of connecting secure, comfortable, civilized locations on the map so a white traveler could easily and safely find their way in the west. By drawing the traveler’s attention to such luxuries, attention was directed away from Native Americans, too, and the places they lived and the struggles they experienced living in a time of post-steam communication. Without the presence, in thought or in actuality, of the savage, communication and civilization could go forth in hand.

Conclusion

Without question, the transcontinental railroad remains one of the most transformative and significant national projects undertaken during the nineteenth century. Given what Gregory Clark has suggested about the formative role of tourism materials in establishing national identity, the examination of such texts gives us insight into the complexity of that identification in the context of the nation’s gradual progress westward. Through the guides, we can see how the marriage of government and private enterprise in completing an unbroken line of communication from the Atlantic to the Pacific not only bolstered values of American exceptionalism, but transformed the nation both physically through altering terrain and shifting territorial claims, but symbolically through informing values tied to an emerging and changing national identity. Through understanding how rhetorical theory and history has imagined the role of rhetoric and communication in mediating and justifying the border between civilization and barbarism, a critical perspective on this crucial national project comes to the foreground.

As I have presented in this chapter, communication in both rhetorical theory and the case of the transcontinental railroad has been sustained in the name of civilization. It was in the name of distinguishing Athenians from the barbarians, or “Addisons” from the “Hottentots,” that communication was valued as a practice governing democratic life. And, it was in the name of advancing American civilization and protecting her national interests that communication routes pushed onward to the west coast, transforming the landscape and its inhabitants. In both of these instances, communication is valued for its guarantee of safety, sameness, and comfort. For someone like Hugh Blair, communication assured a universalized morality, and for proponents of the railroad communication was a means of accessing the west without fear of the “dangerous nature” that lurked. Indeed, even colloquial understandings of communication revolve around utilizing it as a tool to resolving conflict and disagreement as opposed to force or violence. However, as I have argued in this chapter, while civilization is sustained by communication, it is also sustained by the belief in a “savage” or “barbarous” opposite defined by a lack of skills, knowledge, or ability to communicate properly. In other words, the “problems” diagnosed by theorists such as Aristotle and Hume, and the “threats” to national security that loomed in the west, were both used to justify the need for communication—either through critics and touchstones, or a national system of steam engines and rails. Both of these examples support communication’s relationship to civilization, but they also support the notion that in the name of advancing civilization, communication can sanction some truly barbarous and savage acts, such as the wholesale slaughter of Native Americans, and the transformation of the western frontier. Such an understanding calls upon scholars of communication and rhetoric to think more seriously about our ethical commitments when teaching proper speech and writing, as well as the grounds upon which we claim our methods advance civic engagement and democracy. Perhaps,

communication needs to let go of the comforts and guarantees of civilization in order to truly become the thriving and robust enterprise we imagine.

Chapter V: Steam-Powered Rhetoric

This dissertation is about binaries that have been used to prop up what Latour calls a “modern critical stance”—the absolute separation of nature and culture, subject and object, civilized and savage. Each of these chapters has illuminated that this binary is not benign and insignificant, but rather deeply implicated in various areas of public life. I recognize as a conceit that it is unlikely the “modern critical stance” is going away. After all, the separation between nature and culture, for example, informs contemporary policy on climate change, frames debate about environmental harm, and establishes the conditions from which we as rhetorical critics can operate. What I mean by this is rhetoric’s inability to approach the nature side of the binary because of rhetoric’s confinement to the political, the debatable, and the social, has made it particularly difficult for our discipline to uniquely contribute to discourses about climate change. Indeed, to recall from the introduction Latour’s claim that nature always hampers public discourse, an external, transcendent ideal of nature (with which this dissertation has taken fundamental issue) has been made more powerful because it has evaded rhetoric. In other words, because rhetoric has remained on the culture side of the binary, it has powered the transcendent ineffability of the natural world. Make no mistake, rhetoric is an incredibly powerful endeavor and by perpetuating its role as a knowledge-making enterprise, rhetoric has supported existence of facts for too long, believing in their self-evidence and leaving them alone to gain strength through their impenetrability. What we have been dealing with, in other words, is a rhetoric-powered steam. A “fact,” like steam, is made more powerful because rhetoric perpetuates its factual isolation. One of the reasons facts are as powerful as they are is because they have been closed off to investigation from scholars of rhetoric. In other words, something like “science” remains on a pedestal because rhetoric has kept it “off limits.” As this dissertation has

demonstrated, however, this is hardly the case and that facts, especially natural or scientific facts, themselves have an entire breadth of rhetorical life that deserves investigating.

Instead of a knowledge-making enterprise, rhetoric is better conceived as a relation-forming exercise. Rather than rhetoric-powered steam, we might conceive of steam-powered rhetoric. A steam-powered rhetoric is one in which quasi-objects dictate the reality they compose. Steam-powered rhetoric allows for expansive inclusion of many different humans and nonhumans texturizing public life. Steam-powered rhetoric enters the supposed black boxes of the natural world by following and trusting quasi-objects and the ways in which they reveal and conceal their commitments. This is not a call for rhetoric to overthrow the binary of nature and culture, but rather to interrogate that binary by remembering quasi-objects, and letting the network lead the way.

In its broadest sense, this dissertation is about how things like the steam engine, the national park, and the transcontinental railroad, have been used to prop up a political, contested, and shifting boundary between nature and culture. Specifically, this dissertation is about the complex rhetorical life of steam in nineteenth century America, and how steam was used to support and distinguish both industrial progress and environmental conservation. As a tool of analysis, then, steam is a quasi-object—a mixture, of both natural and cultural relations. Methodologically, steam allows us to investigate the composition of nature and culture, respectively. Importantly, it allows us to bring rhetoric into the settled ineffability of the natural world.

Steam appeared in many aspects of everyday life, and thus so did rhetoric. Steam concurrently transformed the potential of American manufacturing, and helped justify our first

National Park, setting a global precedent for the preservation and conservation of natural spaces. Paradoxically, steam was both driving industrial progress, and justifying the protection of the natural world from industrialism's consequences. Steam, like so many other inconspicuous things, passed under the radar as a "matter of fact." Thus, one of the primary goals of this dissertation was to complicate the factual life of steam in favor of a complex life of steam. The benefit of this shift is an ability to see binary between nature and culture as stitched together on strange seams. In other words, the treatment of steam as a quasi-object allows us to investigate how the categories of nature and culture are networked and made meaningful by countless human and nonhuman actants. The categories are not stable because their contents are not stable.

Thinking about the nature/culture binary from an historical perspective is important for two primary reasons. First, and specific to the context of my dissertation, the nineteenth century is home to both the beginning of the Industrial Revolution as well as the environmental conservation movement. Each of these events participates in reifying the binary between nature and culture. Indeed, these two perspectives on human relationships to the world are still opposing forces. Today, when considering the roots of global temperature increase being found in the Industrial Revolution, it is easy to forget that industry first and foremost relied on the power of nature to make machines move. On the other hand, in turning to contemporary environmental movements, industrial growth and pollution are understood as primary threats to the health of the planet and the life it sustains. Yet, if we remember steam, we recall the role of the railroad industry in establishing the first exemplar of environmental conservation in Yellowstone. With National Parks being established as recently as 2014, and with 2016 marking the centennial of the National Park Service, the United States still views this form of preservation as responsible

environmental stewardship. Steam reminds us that industrial growth is what made the national parks possible in the first place.

Second, and related, quasi-objects, when studied from an historical perspective, allows us to “open up” the categories of nature and culture and dismantle them as “explanatory terms,” in favor of animating their contingency. As such, nature, culture, and facts are no longer pre-rhetorical givens. Rather, they are the end-point of vast, complex, historical and contingent networks. In Latour’s words, once we “grant historicity to all the actors so we can accommodate the proliferation of quasi-objects,” nature and culture become destabilized as terms that are “convenient and relative reference points that moderns can use to differentiate intermediaries.”³³⁸ Granting historicity to quasi-objects allows us to animate networks, to disrupt the categories Latour claims have “defined modernity.” Importantly, this opens up a realm of investigative possibility for scholars of rhetoric. Indeed, to follow quasi-objects or things, is to trust in a steam-powered rhetoric, where facts and settled matters of debate are the things we interrogate. In so doing, we not only disrupt the categories of nature and culture, but reinvigorate the potential of critique to inform the composition of facts. With quasi-objects in mind, critique is removed from the confinements of interpretation to the realm of unraveling the factual. An important consequence of focusing on quasi-objects is an ability to rethink ontological distinctions that rely on facts and keep nature and culture, humans and nonhumans separate.

Summary of Chapters

Each chapter of this dissertation has utilized an aspect of steam to explore the shifting relationships nature and culture in the nineteenth century. As such, the three case studies of this dissertation were “powered” or motivated by a particular steam-related object, in order to reveal

that object's politics—steam engines, National Parks, and railroads. I hinged my analysis on tracing a particularly salient iteration of steam, and acknowledging the other humans (Native Americans, for example) and non-humans (geysers or engines), that were “networked” to that iteration on steam. In essence, each one of these chapters attempted to make a methodological move towards “steam-powered rhetoric.”

Chapter two traced the network of the steam engine. This chapter, importantly, set forth that since the early nineteenth century, before steam engines came to define the industrial pace of modern life, steam engines were a thing that functioned in both natural and cultural registers simultaneously. Oliver Evans, John Etzler, and Robert Thurston all complicate and build upon the imbroglio that constitutes the thing of the steam engine. As a thing, the steam engine was evidence of careful observation and study of a natural force, in addition to evidencing a particular cultural disposition and intellectual ability. Importantly, the steam engine was also tied to notions of nationalism and the unique conditions available for technological progress in the first half-century of the young republic. By the late nineteenth century, when steam engines proliferated public life in factories, and along the transcontinental railroad, the steam engine was evidence of particular civilized individuals and geographies where steam engine development occurred.

Importantly, this chapter destabilized the steam engine as a matter of fact in favor of presenting it as a matter of concern or a thing. The thingness of the steam engine illuminates the vast network of humans and nonhumans, natural and cultural, churned together to establish something that circulates as a “factual” steam engine. In other words, the steam engine's thingness illuminates its politics, previously hidden behind a veneer of the factual. Once we

understand the politics of the steam engine, the politics of the things it becomes closely associated to—National Parks and the transcontinental railroad—comes under consideration.

In chapter three, I demonstrated how steam was an integral element in considering the establishment of Yellowstone National Park, the first example from anywhere in the world of a government participating in the conservation of a space deemed “natural.” In this chapter, steam is used simultaneously to define the naturalness of the future national park, and the progress that surrounds it. These are tied to two competing rhetorics of steam—as both a marker of civilization’s progress, and a natural process evidenced by hydrothermal features in Yellowstone. As such, two of the most important factors influencing the creation of the first national park were geysers and railroads.

The geysers in Yellowstone, while considered natural “matters of fact” required the presence of the “unnatural” steam engine in order for them to gain salience as natural wonders. The three texts analyzed in this chapter all do work in presenting a vast network of steam that supports evidence for both its naturalness and its cultural import. Nathaniel P. Langford, operating in the interest of the Northern Pacific Railroad, understood steam in Yellowstone as potential attractions, closely tied to the arrival of the steam engine and the eventual tides of migration and tourists to the region. Geysers were natural “wonders” to be certain, but they gained salience only through the completion of the N.P.R.R.. Dr. Ferdinand V. Hayden of the U.S.G.S. established steam’s natural powers, independent of a connection to the railroad. For Hayden, steam was the result of intricate, entwined, natural processes occurring beneath the earth’s surface. In appealing to the United States Congress to establish the national park, both Langford and Hayden’s accounts proved necessary. However, once the park was established, the messiness of steam’s role in Yellowstone as both steam-powered tourism, and steam-powered

nature, evaporated. Steam inside Yellowstone became evidence of the natural world's uninterrupted processes, and steam outside Yellowstone remained proof of civilization's forward motion. There is a delicate balance and relationship between these two poles, and the relationship is maintained by rhetorical practices that both rely upon and explicitly deny steam's simultaneity. Without the industrial side of steam, there would not have been an argument to protect natural spaces, and without the natural features themselves, the industrial progress of the Northern Pacific Railroad might not have been completed.

In the final case study, I examined the emergence of steam communication in light of the transcontinental railroad by examining tourism guides published following the Last Spike Ceremony in May 1869. Steam communication, made possible by the railroad, was the ability to access people, places, and markets. Steam communication was not only intimately tied to the project of nation building as it enabled access between the Atlantic to the Pacific Oceans, but it was also tied to national security and securing land and resources in the untamed and unsettled west. Importantly, in this process, communication is used to mediate and define what is civilized and uncivilized.

In turning to rhetorical history and theory, we are reminded that communication has often been used to distinguish between civilization and barbarity, and often justifies racial or colonial violence. In the context of the transcontinental railroad, the mobilization of communication along tracks did work to literally designate and transform uncivilized and civilized space and bodies. Importantly, steam communication helps us complicate the ideal of communication being a practice that helps govern democratic life. After all, communication via the transcontinental railroad was in a vital guarantee that American empire could spread. But we must not forget that because communication was able to define what was "uncivilized" it supported violence against

Native Americans and the transformation of the landscape to suit civilization's purposes. This chapter implores a consideration of the ethics of upholding communication as a cornerstone of a democratic polity, and the implications of using communication to adjudicate appropriate participation in civic life.

Limitations and Future Research

This dissertation is of course bound by certain limitations. As I continue forward with this project, developing chapters into journal submissions, and refiguring the entire manuscript in consideration of a book proposal, I intend to address these limitations and accommodate for more. Unfortunately, the project as it stands was bound by space and time in several ways. Perhaps most obvious is the availability of historical documents. Because of the near-universal reliance on historical documents to gather my evidence, I am positive this research has blind spots, and areas that I have not investigated. For example, steam also has a vibrant history of being closely connected to health, wellness, and cleanliness. During the nineteenth century, this was a prominent iteration of steam, but is not covered in the course of this dissertation, save for one brief mention in chapter three. Additionally, there is an entire body of fine art from the late nineteenth century that deals with steam in both natural and cultural iterations. Excluding Thomas Moran, an examination of steam and art would be a fascinating and important case study. Documentation aside, quasi-objects and networks come with their own limitations, as well. As Latour would remind us, the assemblage is never complete and there can always be more "reality" to add. As steam is simultaneously revealed and concealed in so many areas of public life, I am certain the network can and will include more quasi-objects as it grows and shifts.

Additionally, and perhaps most gravely, this project is limited by its inclusion of only a very particular chorus of voices. This project has almost exclusively been dominated by the voices of formally educated white men. This has perhaps been the most difficult limitation to work with and the most troubling one to justify. Especially in chapters three and four, the lack of Native American voices and perspectives is both noticeable and unfortunate. Going forward, these two chapters (especially chapter four) *must* include nonwhite voices to enrich the story of steam communication I am trying to tell. In figuring a justification for this exemption, I can think of only two. First, on the whole, I am concerned with the legacy a western ontological position illuminated by steam. That is to say, I am concerned with how the categories of nature and culture, as perpetuated by western culture, shape the terrain in which other (nonwestern) humans are subjected to live. That is not to say there is not another way of understanding this distinction, but that I first chose to address the perspective of the creator. Importantly, this is also the perspective from which we currently author and pursue policy decisions that seek to address climate change. Second, I quite frankly am not well enough acquainted with the scholarship and literature that would help me accomplish this task and thus felt ill-equipped to represent or discuss artifacts in this tradition. Going forward, I will remedy this by acquainting myself with the scholarship and voices of nonwhite individuals living in the presence of the steam engine and add their much-needed voices to the story I tell.

Final Thoughts

At its core, steam-powered rhetoric illustrates a methodological opportunity for rhetorical criticism. Of course, the discipline certainly houses many methodologies guiding our articles, journals, and book projects. To be certain, these methodologies have produced some important and (dare I say) touchstones of criticism. However, methodologies that concern themselves with

“social construction” have proven insufficient when dealing with contemporary issues pertaining to things, nonhumans, and the natural world. Climate change and its effects proceed with or without deconstructing the socially constructed world. I strongly believe this is a hurdle our discipline needs to overcome in order to contribute more seriously to helping promote varied solutions to climate change.

By guiding our criticism with things, we can provide more meaningful contributions to the areas of Rhetoric of Science and Technology by illuminating how the categories of science and technology themselves are contested and contestable. We can help increase the critical purchase of History of Science through keeping front-and-center the value claims of scientific enterprises as demonstrated through networks. And we can contribute to Environmental Communication by thinking ecologically, of the complex relationships that create our common worlds and our common problems. We can collectively develop solutions that account for quasi-objects and their entanglements so that when we seek to solve serious ecological crises we do not cast entities aside because they are socially constructed. Instead, we give them new vibrancy through new relations, invigorating their rhetorical lives, the pulse of their circulation. We might not be able to erase a binary relationship that has structured western thought for hundreds of years, but we can complicate that boundary when we open up the world in which rhetoric can do work, illuminating new relationships and presenting new possibilities for critique.

Endnotes

¹ Robert H. Thurston, *A History and Growth of the Steam-Engine*. (New York, 1878), 2.

² William Rosen, *The Most Powerful Idea in the World: A Story of Steam, Industry, and Invention*. (Chicago: University of Chicago Press, 2010).

³ Bruno Latour. *We Have Never Been Modern*. (Cambridge: Harvard University Press, 1993), 51-5.

⁴ Ibid.

⁵ Bruno Latour. *Politics of Nature: How to Bring the Sciences into Democracy*. (Cambridge: Harvard University Press, 2004), 30-1.

⁶ Steven Shapin and Simon Schaffer's book *Leviathan and the Air Pump*, which Latour devotes significant attention to in the opening sections of *We Have Never Been Modern*, investigates the relationship between scientific experiment and social philosophy in the debates between Thomas Hobbes and Robert Boyle. Here, Shapin and Schaffer are concerned with the production of scientific fact and an impetus of historians to ignore or dismiss the social factors relevant therein and the mobilization of scientific data for political ends. Steven Shapin and Simon Schaffer, *Leviathan and the Air Pump: Hobbes, Boyle, and Experimental Life*. (Princeton: Princeton University Press, 1985).

⁷ Donna Haraway. *Primate Visions: Gender, Race, and Nature in the World of Modern Science*. (New York: Routledge, 1989), 1).

⁸ Jane Bennett. *Vibrant Matter: A Political Ecology of Things*. (Durham: Duke University Press, 2010), 1).

⁹ Ibid., 5.

¹⁰ Ibid., xiv.

¹¹ Ibid., 6.

¹² Paul Lynch and Nathaniel Rivers. *Thinking with Bruno Latour in Rhetoric and Composition*. (Carbondale: Southern Illinois University Press, 2015), 3.

¹³ Ibid.

¹⁴ Carl Herndl and S. Scott Graham. "Getting Over Incommensurability: Latour New Materialisms, and the Rhetoric of Diplomacy." In *Thinking with Bruno Latour in Rhetoric and Composition*. (Carbondale: Southern Illinois University Press, 2015) 41).

¹⁵ Latour, *Politics of Nature*, 9.

¹⁶ Ibid., 10-18.

¹⁷ Aristotle, *On Rhetoric: A Theory of Civic Discourse*, Translated by George A. Kennedy, 2nd edition, 2007 New York Oxford University Press p. 41

¹⁸ R. Allen Harris, "Rhetoric of Science," *College English* 53, no. 3 (1991): 282-307; Jeanne Fahnestock, "Accommodating Science: The Rhetorical Life of Scientific Facts," *Written Communication* 3, no. 3 (1986): 275-296; Brett Bricker, "Climategate: A Case Study in the Intersection of Facticity and Conspiracy Theory," *Communication Studies* 64, no. 2 (2013): 218-239; Lisa Keranen, "Concocting Viral Apocalypse: Catastrophic Risk and the Production of Bio(in)security," *Western Journal of Communication* 75, no. 5 (2011): 451-472; Alan G. Gross and William M. Keith, eds., *Rhetorical Hermeneutics: Invention and Interpretation in the Age of Science* (Albany: State University of New York Press, 1997).

¹⁹ Kevin Deluca. "Trains in the Wilderness: The Corporate Roots of Environmentalism," *Rhetoric and Public Affairs* 4, no. 4 (2001): 633-652.

²⁰ Latour, *Politics*, 10-18.

²¹ Dilip Parameshwar Gaonkar, "The Idea of Rhetoric in the Rhetoric of Science," in *Rhetorical Hermeneutics: Invention and Interpretation in the Age of Science*, eds. Alan G. Gross and William M. Keith (Albany: State University of New York Press, 1997), 27.

²² Herndl and Graham, "Incommensurability," *Thinking*, 42.

²³ Ibid.

²⁴ Sidney W. Mintz, *Sweetness and Power: The Place of Sugar in Modern History* (New York: Elisabeth Sifton Books, 1985): xxii

²⁵ Ibid., xxviii

²⁶ Bruno Latour. *Pandora's Hope: Essays on the Reality of Science Studies* (Cambridge: Harvard University Press, 1999).

²⁷ Kevin Deluca and Anne Demo, "Imagining Nature and Erasing Class and Race: Carleton Watkins, John Muir, and the Construction of Wilderness," *Environmental History* 6, no. 4 (2001): 541-560; Phaedra Pezzullo, "Contextualizing Boycotts and Buycotts: The Impure Politics of Consumer-Based Advocacy in an Age of Global Ecological Crises," *Communication and Critical/Cultural Studies* 8, no. 2 (2011): 124-145.

²⁸ Phaedra Pezzullo. *Toxic Tourism: Rhetorics of Travel, Pollution, and Environmental Justice* (Tuscaloosa: University of Alabama Press, 2007).

²⁹ For example, I am intrigued by the many scholars following in the tradition of Butler, Hegel, Buber, Foucault, and the like, who have complicated notions of selfhood, and made "identity politics" a for-better-or-worse buzzword of our contemporary scholastic moment. Meaningful scholarship that exposes our vulnerability and relationality to each other and our shared worlds has shown that identity is never stable, nor is it ever truly knowable. But in many ways, we have not moved past upholding the natural world as something we can know complete, or that we can

articulate with precision because we can see it, touch it, and observe it in motion. It has not complicated the idea that we can have an unstable and shifting self that can understand a stable and observable natural world.

³⁰ Timothy Morton. *Ecology Without Nature: Rethinking Environmental Aesthetics* (Cambridge: Harvard University Press, 2007): 1.

³¹ *Ibid.*, 2.

³² *Ibid.*, 5.

³³ *Ibid.*

³⁴ *Ibid.*

³⁵ *Ibid.*, 6.

³⁶ *Ibid.*, 3.

³⁷ *Ibid.*, 19.

³⁸ *Ibid.*, 20.

³⁹ *Oxford English Dictionary (Online Edition)*, s.v. “communication.”

⁴⁰ Bruno Latour, “From Realpolitik to Dingpolitik or How to Make Things Public,” in *Making Things Public—Atmospheres of Democracy*, eds. Bruno Latour and Peter Weibel (Cambridge: MIT Press, 2005), 9-10.

⁴¹ *Ibid.*, 12.

⁴² *Ibid.*, 13.

⁴³ Bruno Latour, “Why Has Critique Run out of Steam: Matters of Fact, Matters of Concern,” *Critical Inquiry* 30, no. 2 (Winter, 2004): 233.

⁴⁴ *Ibid.*

⁴⁵ Latour, *Modern*, 30.

⁴⁶ Hugo A. Meier, “Book Review: Oliver Evans: Inventive Genius of the American Industrial Revolution, by Eugene S. Ferguson,” *Pennsylvania History* 49, no. 2 (April 1982): 141.

⁴⁷ Ibid.

⁴⁸ Thomas P. Jones, preface to *The Young Mill-Wright and Miller’s Guide*, by Oliver Evans, 12th ed. (Philadelphia: Lea & Blanchard, 1848).

⁴⁹ Meier, 5.

⁵⁰ The word “abortion” in this context may seem a curious choice. According to the *Oxford English Dictionary* and sources writing about this particular book, an alternative use for the word “abortion” is a “thing not fully formed” or a “poorly executed” undertaking. Indeed, it is a curious word for someone to use in titling their own work, but additional research suggests that this title may reflect Evans’s struggles to complete this book.

⁵¹ Oliver Evans, *The Abortion of the Young Steam Engineer’s Guide*, (Philadelphia: H.C. Carey & I. Lea, 1805), 2-3

⁵² Rebecca Kessler, “On land and sea, a true marvel 1805’s answer to the off-road vehicle,” *Philadelphia Inquirer*, July 14, 2005, http://articles.philly.com/2005-07-14/news/25433404_1_dredging-sia-wheels

⁵³ Ibid.

⁵⁴ Ibid., 1.

⁵⁵ Ibid.

⁵⁶ Ibid., 2.

⁵⁷ Ibid., 132.

⁵⁸ Robert H. Thurston, *A History and Growth of the Steam Engine*, (New York: D. Appleton and Company, 1878), 156-7.

⁵⁹ Gregory Clayes, "Ecology and Technology in Early Nineteenth Century American Utopianism: A Note on John Adolphus Etzler," *Science and Society* 50, no. 2, (Summer 1986): 220.

⁶⁰ John Adolphus Etzler, *The Paradise Within Reach of All Men, Without Labor, By Powers of Nature and Machinery*, (London: John Brooks, 1833), 120.

⁶¹ *Ibid.*, B.

⁶² Importantly, Etzler also discussed the power of the sun, the tides, and the wind, all of which function similarly to steam in his book. For the purposes of this essay, however, I am focusing my attention on steam.

⁶³ Etzler, 44.

⁶⁴ *Ibid.*, 3.

⁶⁵ *Ibid.*, 40-3.

⁶⁶ *Ibid.*, 38, 52.

⁶⁷ *Ibid.*, 47.

⁶⁸ *Ibid.*

⁶⁹ *Ibid.*, 50-1.

⁷⁰ *Ibid.*, 211.

⁷¹ *Ibid.*

⁷² *Ibid.*, 212.

⁷³ *Ibid.*, 120.

⁷⁴ *Ibid.*, 214.

⁷⁵ *Ibid.*

⁷⁶ *Ibid.*

⁷⁷ Ibid., 216.

⁷⁸ Ibid., 102.

⁷⁹ Ibid., 54-5.

⁸⁰ Ibid., 161.

⁸¹ Thurston, 10.

⁸² Ibid., 56.

⁸³ Ibid.

⁸⁴ Ibid., 2.

⁸⁵ Ibid.

⁸⁶ Ibid.

⁸⁷ Latour, *Modern*, 10.

⁸⁸ Ibid., 3.

⁸⁹ Ibid.

⁹⁰ Ibid.

⁹¹ Ibid.

⁹² Ibid., 5.

⁹³ Ibid., 19.

⁹⁴ Ibid., 24.

⁹⁵ Ibid.

⁹⁶ Ibid.

⁹⁷ Ibid.

⁹⁸ Ibid., 154.

⁹⁹ Ibid.

¹⁰⁰ Ibid.

¹⁰¹ Ibid., 551.

¹⁰² Ibid., 552.

¹⁰³ Ibid.

¹⁰⁴ An Act to Set Apart a Certain Tract of Land Lying Near the Headwaters of the Yellowstone River as a Public Park, S. 392, 42nd Cong. 2nd Sess. (1872).

¹⁰⁵ Nathaniel P. Langford, “The Wonders of the Yellowstone [Part 1],” *Scribner’s Monthly*, May 1871, Vol. II, 15.

¹⁰⁶ “Yellowstone National Park,” U.S. National Park Service, last modified January 30, 2015, <http://www.nps.gov/yell/index.htm>.

¹⁰⁷ Ibid.

¹⁰⁸ “Stats Report Viewer,” U.S. National Park Service, last modified 2013, <https://irma.nps.gov/Stats/SSRSReports/National%20Reports/Annual%20Park%20Ranking%20Report%20%281979%20-%20Last%20Calendar%20Year%29>. Yellowstone Park alone attracts over 3 million visitors per year; “Explore Nature,” U.S. National Park Service, last modified December 30, 2014, <http://www.nature.nps.gov>.

¹⁰⁹ U.S. National Park Service, “Explore Nature.”

¹¹⁰ Bruno Latour, *We Have Never Been Modern*, trans. Catherine Porter (Cambridge: Harvard University Press, 1993).

¹¹¹ Langford, “Wonders [Pt. 1],” 1.

¹¹² Aubrey L. Haines, *The Yellowstone Story: A History of Our First National Park, Volume One*, Rev. ed. (Boulder, CO: University Press of Colorado, 1997), 100.

¹¹³ Ibid.

¹¹⁴ Haines, *Yellowstone*, 108.

¹¹⁵ *Ibid.*, 137.

¹¹⁶ *Ibid.*

¹¹⁷ Langford, “Wonders [Pt. 1],” 2.

¹¹⁸ *Ibid.*, 3.

¹¹⁹ *Ibid.*

¹²⁰ *Ibid.*

¹²¹ *Ibid.*

¹²² Nathaniel P. Langford, “The Wonders of the Yellowstone [Part 2],” *Scribner’s Monthly*, June 1871, Vol. II, 122.

¹²³ Langford, “Wonders [Pt. 2],” 123.

¹²⁴ *Ibid.*

¹²⁵ *Ibid.*

¹²⁶ *Ibid.*

¹²⁷ *Ibid.*

¹²⁸ *Ibid.*, 123-4.

¹²⁹ *Ibid.*, 124.

¹³⁰ *Ibid.*, 121.

¹³¹ *Ibid.*, 127.

¹³² Langford, “Wonders [Pt. 1],” 7.

¹³³ Langford, “Wonders [Pt. 2],” 124, 126.

¹³⁴ *Ibid.*, 127.

¹³⁵ *Ibid.*, 128.

¹³⁶ Ibid.

¹³⁷ Ibid.

¹³⁸ Latour, *Modern*, 10.

¹³⁹ Haines, *Yellowstone*, 137.

¹⁴⁰ Ibid., 138.

¹⁴¹ Ibid., 141.

¹⁴² Ibid.

¹⁴³ Ibid.

¹⁴⁴ Ibid., 142.

¹⁴⁵ Ibid., 151.

¹⁴⁶ Ibid., 152-3.

¹⁴⁷ Ibid., 153.

¹⁴⁸ U.S. Congress, House of Representatives, U.S. Geological Survey, Preliminary Report of the United States Geological Survey of Montana and Portions of Adjacent Territories; Being a Fifth Annual Report of Progress, by F.V. Hayden, United States Geologist, 42d Cong., 2d sess., 1872, Ex. Doc. No. 326

¹⁴⁹ Hayden, *Report*, 4.

¹⁵⁰ Ibid., 8.

¹⁵¹ Ibid.

¹⁵² Ibid., 4.

¹⁵³ Ibid., 9.

¹⁵⁴ Ibid.

¹⁵⁵ Ibid., 197-8.

¹⁵⁶ Langford, “Wonders [Pt. 2],” 123.

¹⁵⁷ *Ibid.*, 124.

¹⁵⁸ *Ibid.*, 186.

¹⁵⁹ *Ibid.*

¹⁶⁰ *Ibid.*

¹⁶¹ Hayden, 187-8.

¹⁶² Congressional Globe, 42nd Cong., 2d. Sess. 159 (1872).

¹⁶³ *Ibid.*

¹⁶⁴ Hiram M. Chittenden, *The Yellowstone National Park* (Cincinnati: Steward & Kidd, 1917),

93.

¹⁶⁵ *Ibid.*, 94.

¹⁶⁶ *Ibid.*

¹⁶⁷ *Ibid.*

¹⁶⁸ *Ibid.*

¹⁶⁹ *Ibid.*, p. 96.

¹⁷⁰ Hayden, *Report*, 162.

¹⁷¹ *Ibid.*

¹⁷² *Ibid.*

¹⁷³ *Ibid.*

¹⁷⁴ *Ibid.*

¹⁷⁵ *Ibid.*

¹⁷⁶ Haines, *Yellowstone*, 141.

¹⁷⁷ “New York,” *Boston Daily Advertiser*, Monday April 1 1872.

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- ¹⁷⁸ “Thomas Moran’s Grand Canon of the Yellowstone,” *Scribner’s Monthly*, June 1872.
- ¹⁷⁹ *Ibid.*
- ¹⁸⁰ *Ibid.*
- ¹⁸¹ *Ibid.*
- ¹⁸² *Ibid.*
- ¹⁸³ “Washington,” *Cleveland Morning Daily Herald*, June 3, 1872, Issue 133.
- ¹⁸⁴ *Ibid.*
- ¹⁸⁵ Joni I. Kinsey, *Thomas Moran’s West: Chromolithography, High Art, and Popular Taste* (Lawrence, Kansas: University of Kansas Press, 2006), 58.
- ¹⁸⁶ Haines, *Yellowstone*, 168-9.
- ¹⁸⁷ *Ibid.*, 169.
- ¹⁸⁸ Yellowstone Park Act.
- ¹⁸⁹ “The Yellowstone Park: A Public History,” *The Glendive Times*, August 30, 1883.
- ¹⁹⁰ *Ibid.*
- ¹⁹¹ Northern Pacific Railroad Company, *The Wonderland of the World* (St. Paul: Charles S. Fee, General Passenger Agent, Northern Pacific Railroad, 1884), 5.
- ¹⁹² *Ibid.*, 3.
- ¹⁹³ *Ibid.*
- ¹⁹⁴ *Ibid.*5.
- ¹⁹⁵ *Ibid.*, 6.
- ¹⁹⁶ *Ibid.*, 5.
- ¹⁹⁷ *Ibid.*, 11.
- ¹⁹⁸ *Ibid.*

¹⁹⁹ Ibid.

²⁰⁰ Ibid., 24.

²⁰¹ Ibid., 24-5, emphasis in original.

²⁰² Ibid., 25.

²⁰³ Ibid.

²⁰⁴ Ibid.

²⁰⁵ Ibid., 25.

²⁰⁶ Ibid., 26

²⁰⁷ Ibid., 28.

²⁰⁸ Ibid.

²⁰⁹ Ibid., 25.

²¹⁰ Ibid., 29.

²¹¹ Ibid., 31.

²¹² U.S. National Park Service, "Yellowstone."

²¹³ George A. Crofutt, *Crofutt's Trans-Continental Tourist's Guide* (New York: Geo. A. Crofutt, 1872), 116.

²¹⁴ Ibid.

²¹⁵ Ibid., 116-7.

²¹⁶ J.N. Bowman, "Driving the Last Spike at Promontory, 1869, Pt. 1" *California Historical Society Quarterly* 36, no. 2 (June 1957): 96-106; Bowman, J.N., "Driving the Last Spike at Promontory, 1869, Pt. 2" *California Historical Society Quarterly* 36, no. 3 (September 1957): 263-274, http://cpr.org/Museum/Bowman_Last_Spike_CHS.html.

²¹⁷ Ibid.

²¹⁸ Crofutt, 117.

²¹⁹ Ibid.

²²⁰ *Report of the Select Committee on the Pacific Railroad and the Telegraph [Including a Minority Report and Proposed Pacific Railroad Acts]* 34th Cong., 1st sess., House Report No. 358 (http://cpr.org/Museum/HR_Report_358_1856.html), emphasis added.

²²¹ Ibid.

²²² Ibid.

²²³ Ibid.

²²⁴ U.S. Department of War, “Report of the Secretary of War,” December 4, 1854, http://cpr.org/Museum/SecWar_1854_TDJ.html

²²⁵ *Republican National Platform, 1860*. Adopted by the Republican National Committee, May 17, 1860, http://cpr.org/Museum/Ephemera/Republican_Platform_1860.html

²²⁶ *Democratic Party Platform, 1860*. Adopted by the Democratic National Committee June 18, 1860, http://avalon.law.yale.edu/19th_century/dem1860.asp

²²⁷ *Oxford English Dictionary (Online Edition)*, s.v. “communication.”

²²⁸ Aristotle, “Rhetoric,” in *The Rhetorical Tradition: Readings from Classical Times to the Present*, 2nd Ed., eds. Patricia Bizzell and Bruce Herzberg (Boston: Bedford/St. Martin’s, 2001), 180-1.

²²⁹ Hannah Arendt, *The Human Condition* 2nd Ed., (Chicago: University of Chicago Press, 1958), 24-5.

²³⁰ Ibid., p. 26.

²³¹ Ibid., p. 27.

²³² Ibid., p. 31.

²³³ John Locke, *Second Treatise on Government* (1689), n.p.,
<http://www.earlymoderntexts.com/assets/pdfs/locke1689a.pdf>

²³⁴ Ibid.

²³⁵ Ibid.

²³⁶ Ibid.

²³⁷ Ibid.

²³⁸ Ibid.

²³⁹ Ibid.

²⁴⁰ Ibid.

²⁴¹ Ibid.

²⁴² David Hume, "Of the Standard of Taste," in *The Rhetorical Tradition: Readings from Classical Times to the Present*, 2nd Ed., eds. Patricial Bizzell and Bruce Herzberg (Boston: Bedford/St. Martin's, 2001), 831.

²⁴³ Ibid.

²⁴⁴ Patricial Bizzell and Bruce Herzberg, "David Hume: 1711-1776," in *The Rhetorical Tradition: Readings from Classical Times to the Present*, 2nd Ed. (Boston: Bedford/St. Martin's, 2001), 829.

²⁴⁵ Hume, 831.

²⁴⁶ Ibid.

²⁴⁷ Bizzell and Herzberg, "Hugh Blair, 1718-1800," 947.

²⁴⁸ Hugh Blair, "From Lectures on Rhetoric and Belles Lettres," in *The Rhetorical Tradition: Readings from Classical Times to the Present*, 2nd Ed. (Boston: Bedford/St. Martin's, 2001), 950.

²⁴⁹ Ibid., 959

²⁵⁰ Ibid.

²⁵¹ Ibid., 961.

²⁵² “Congress,” *Vermont Chronicle* (Bellows Falls, Vermont), Tuesday, February 3, 1852, 18.

²⁵³ Ibid.

²⁵⁴ “The Railroad Bill,” *Bangor Dailey Whig & Courier* (Bangor, Maine), Wednesday, March 23, 1864.

²⁵⁵ Elliot West, “American Indians and the Transcontinental Railroad,” *The Gilder Lehrman Institute of American History*, n.d., <http://www.gilderlehrman.org/history-by-era/development-west/essays/american-indians-and-transcontinental-railroad>

²⁵⁶ Pacific Railway Act of 1862, Cong. Globe, 37th cong. 2nd sess, 491 (1862).

²⁵⁷ Ibid., 491-2.

²⁵⁸ Herbrt Gottfried, *Landscape in American Guides and View Books: Visual History of Touring and Travel*, (Lanham: Lexington Books, 2013), 7.

²⁵⁹ Gregory Clark, *Rhetorical Landscapes in America: Variations on a Theme from Kenneth Burke*, (Columbia: University of South Carolina Press, 2004), 7.

²⁶⁰ Ibid., 16.

²⁶¹ Gottfried, 7.

²⁶² Ibid.

²⁶³ Ibid.

²⁶⁴ Census Office, *Report of the Superintendent of the Census for December 1, 1852, Which is Appended the Report for December 1, 1851*, 32nd cong., 2nd sess.,

http://www.cpr.org/Museum/1851_Census/index.html

²⁶⁵ Ibid.

²⁶⁶ Crofutt, 16

²⁶⁷ Ibid., 2.

²⁶⁸ Ibid., 16.

²⁶⁹ Ibid., 17.

²⁷⁰ Ibid., 16.

²⁷¹ Ibid., 17.

²⁷² Henry T. Williams, *Williams' Illustrated Trans-Continental Guide*, (New York: Henry T.

Williams, 1877), http://www.cpr.org/Museum/Books/Williams_Pacific_Tourist.html

²⁷³ Frederick R. Goddard, *Where to Emigrate, And Why: Homes and Fortunes in the Boundless*

West and Sunny South With a Complete History and Description of the Pacific Railroad,

(Philadelphia: The People's Publishing Company, 1869),

http://www.cpr.org/Museum/Where_To_Emigrate.html

²⁷⁴ Ibid.

²⁷⁵ Ibid.

²⁷⁶ Crofutt, 65.

²⁷⁷ Ibid., 133.

²⁷⁸ Ibid., 46.

²⁷⁹ Ibid., 50.

²⁸⁰ Ibid., 50.

²⁸¹ Ibid. 232.

²⁸² Thomas Weed, *A Souvenir of the Transcontinental Excursion of Railroad Agents 1870*,

(Albany: Weed, Parson & Co., 1871), 42-52,

http://www.cpr.org/Museum/Travel_Agents_1870.html

²⁸³ Ibid.

²⁸⁴ Williams, 7.

²⁸⁵ Crofutt, 73.

²⁸⁶ Goddard, n.p.

²⁸⁷ Williams, 34-7.

²⁸⁸ Ibid.

²⁸⁹ Ibid.

²⁹⁰ Ibid.

²⁹¹ Crofutt, 31.

²⁹² Ibid., 86.

²⁹³ Ibid., 15.

²⁹⁴ Ibid., 40.

²⁹⁵ Ibid.

²⁹⁶ Ibid., 41.

²⁹⁷ Ibid.

²⁹⁸ Ibid.

²⁹⁹ T. Nelson, *Nelsons' Pictorial Guide Books: Scenery of the Union Pacific Railroad*, (New York: T. Nelson & Sons, 1871), 28.

³⁰⁰ Goddard, n.p.

³⁰¹ Crofutt, 21.

³⁰² Ibid., 10.

³⁰³ Williams, 5.

³⁰⁴ Ibid.

³⁰⁵ Ibid.

³⁰⁶ Ibid.

³⁰⁷ Ibid.

³⁰⁸ Crofutt, p. 25.

³⁰⁹ “Pacific Railroad Traveler’s Letter, William Smith, 1875,” Central Pacific Railroad Historical Society, Accessed June 29, 2016, http://cprh.org/museum/ephemera/Emigrant_letter_1875.

³¹⁰ “Young Emigrant Woman’s Letter Home Giving a First Person Account of Her Family’s Then Recently Completed Ten-Day Rail Journey from Little Falls, New York, to Sacramento, in December 1876, and the Beginning of Their New Life in California, January 1877,” Central Pacific Railroad Historical Society, Accessed June 29, 2016, http://cprh.org/museum/ephemera/emigrant_letter_1877.html.

³¹¹ Williams, 8.

³¹² Crofutt, 28

³¹³ Ibid.,

³¹⁴ Ibid., 79.

³¹⁵ Ibid., 59.

³¹⁶ Ibid.

³¹⁷ Weed, n.p.

³¹⁸ Weed, n.p.

³¹⁹ Ibid.

³²⁰ Nelson, 21.

³²¹ Ibid.

³²² Crofutt 18.

³²³ Ibid., 75

³²⁴ Ibid., 37.

³²⁵ Ibid., 15.

³²⁶ Ibid., 13.

³²⁷ Ibid., 14.

³²⁸ Ibid., 22.

³²⁹ Ibid., 26.

³³⁰ Williams, 16.

³³¹ Ibid.

³³² Ibid.

³³³ Goddard, n.p.

³³⁴ Ibid.

³³⁵ Ibid., 66.

³³⁶ Ibid.

³³⁷ Goddard, n.p.

³³⁸ Latour, *Modern*, 85.