In the Unlikely Event:

Danger and the Transportation Revolution in America

by

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ABSTRACT

This study is a cultural history of danger, disaster, and steam-powered transportation in nineteenth-century America. The application of steam power to transportation, a globally transformative innovation, had particular influence in the early United States. A vast American continent with difficult terrain and poor infrastructure posed significant challenges, both to individual mobility and to a nation eager to build an integrated economy, a unified culture, and a functional republican government. Steamboats and locomotives offered an apparent solution, their speed and power seemingly shrinking distances between places and expanding mobility and access across space, a process contemporaries and scholars have described as a sort of space-time compression. However, these machines that overcame space also blew up, caught fire, wrecked, collided, derailed, and broke down, killing tens, and often hundreds, of Americans at a time. This dissertation analyzes the ways Americans encountered, interpreted, and adapted to these new dangers, all the while making the technology that created them an ever more essential aspect of their lives. I argue that Americans' responses to disasters, filtered through the transportation and communication networks created by steam power, constituted a deep, shared reflection about the nature of expanded mobility in a fast-evolving modern America. Though few suffered disaster directly, Americans collectively framed the danger of steam as both a profound national problem and an evocative symbol of modernity. Through public conversations mediated by print, Americans identified susceptibility to danger as inherent to high-speed travel, and, alongside practical safety measures, developed distinctly modern cultural adaptations to understand and manage that danger. By century's end, Americans had

cultivated a modern mentality on mobility, technology, and danger: though most

Americans never experienced disaster they were intimately aware of it, and though

familiar with catastrophe they understood it as unlikely and accepted it as a feature of

their modern technological lives.

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ABBREVIATIONS

The following abbreviations are used after the first mention in each chapter of the collection or archive in the footnotes.

AAS   American Antiquarian Society
ASPC   American Satirical Prints Collection
HL   Huntington Library
JLIC   Jay T. Last Insurance Collection
JLMC   Jay T. Last Maritime Collection
JLSMC   Jay T. Last Sheet Music Collection
JLTC   Jay T. Last Transportation Collection

Introduction

"In the unlikely event." Anyone who has ever been a passenger on a commercial airline has probably heard these words, usually preceding "of a water landing" or "of a loss in cabin pressure." They form a standard phrase in the safety instructions presented to passengers at the beginning of a flight. Passengers board the plane, take their seats, and begin whatever activity they will use to pass the travel time. For most, the safety instructions go relatively unnoticed, their familiarity encouraging dismissal. If we actually think about the words "in the unlikely event," we know what they mean. These words confront us with the possibility of mass catastrophe, injury, and death. They also reassure us – the word "unlikely" emphasizing the remoteness of that possibility. Even so, many of us still think about the potential disaster. We have seen it happen and we know what it looks like, from the news and popular culture. A crash is not a possibility that is difficult to imagine. But it's also easy to believe that disaster will not happen to us. For most of us, the unlikely event does not keep us from traveling.

Few moments embody our modern existence as well as those at the beginning of an airline flight, moments experienced by hundreds of thousands of Americans every day.[1] They represent a launching point from which we reach distant destinations in a world that is accessible because of the speed, power, and convenience the technology presents to us. Americans can cross their country in five hours and reach the opposite side of the globe in fifteen. But this modern luxury is dependent on large, physical objects using massive amounts of internal power to move through space at high speeds. Thus,

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[1] Marc Augé also begins his study of "supermodernity" with a prologue posing the spaces and moments occupied by a man preparing for and taking a flight as emblematic of the modern condition, though he makes no mention of potential danger, which I see as another crucial feature of modernity. Marc Augé, *Non-Places: An Introduction to Supermodernity,* trans. John Howe (New York: Verso, 1995), 1-6.

they also hold an inherent potential for danger. Modern technologies bring tremendous progress but also social consequences. Not all technologies have deadly potential, but living in a technological society requires daily bargains – acceptance of the unease that accompanies the promise of modern innovations. This is the story of one of those bargains: the cost of expansive mobility – the ability to abridge space and time – is unlikely, but inescapable, danger.

To understand this modern bargain we must travel back in time to the early nineteenth century, when the United States, like much of the world, was undergoing a technological revolution. Prior to the nineteenth century, there had been little change for centuries in the ways that humans powered movement. On water, boats were carried by the current, pushed by wind, or propelled or pulled by human or animal force. On land, humans relied on gravity and animals to move wheeled vehicles, or they moved with their own or animal power. Human mobility had gradually improved over the centuries, particularly when shipbuilding and sailing technologies turned oceans into transportation highways between continents. Still, mobility was dictated and limited by basic natural forces.

That changed once humans successfully harnessed steam power and applied it to water and land transportation. Steam, when utilized in engines on boats and trains, created a motive power that far exceeded human and animal capability – a power that could overcome limits imposed by nature. Steam powered boats up rivers and trains up hills with previously impossible ease. Dramatic increases in power also resulted in dramatic increases in speed. Within the first generation of steam-powered transportation, travel times around the United States were more than cut in half. By midcentury

innovations in communication like the telegraph had joined the steamboat and the train to transform Americans' access to people, goods, and places distant from themselves. Contemporaries of the transition commonly said that "time and space has been completely annihilated."[2] Their hyperbole reflects the transformative nature of the new technologies, already apparent to Americans who witnessed their beginning. Steamboats and trains became sources of pride in American progress, machines carrying the nation and its citizens into a promising, modern future.

Imagine the collective distress, then, when those same machines repeatedly blew up, caught fire, wrecked, collided, derailed, and broke down, killing tens, and sometimes hundreds, of Americans at a time. Steamboat and train accidents were both literally and figuratively jarring – they physically halted rapid movement through space, but they also presented a formidable obstacle to pervasive progressive rhetoric about steam power annihilating space and time. Steam disasters in nineteenth-century America provoked a widespread and multifaceted public response, reflective of a people striving to make sense of a serious social problem while making the technology that created it an ever more essential aspect of their lives. Adapting to the technological reality steamboats and trains had both helped to initiate and represented required a cultural and psychological leap – to step fully into this modern era, Americans had to learn to reconcile the advantages of these technologies with their anxieties about the new dangers that steam power presented.

The revolution launched by steam-powered transportation and disasters on steamboats and trains extended beyond America's borders, and yet the particular

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[2] This exact phrasing can be found in the *Baltimore Sun*'s reporting on the telegraph, May 31, 1844, but the sentiment and language were commonly applied to transportation and communication improvements.

manifestation of steam transportation and danger in the United States makes this a significant and distinct national story. Steam-powered transportation had profound influence for the early United States, where distance and terrain posed major challenges to social and economic integration as well as to the political ideas upon which the republic was formed. Steam navigation on inland rivers and railroad transportation took hold in the United States as nowhere else. The dangers of steam travel also became especially troublesome in a country that had quickly incorporated technological progress into its national identity. In the perceptions of many European and American passengers on steamboats and trains, American travel was uniquely dangerous among Western countries, and rough evidence suggests this was true.[3] The death and destruction wrought by the much-celebrated, space-conquering machines carried extraordinary weight in the United States, leading Americans occasionally to reimagine and further articulate the identity of the American republic in relation to modernity.

Historians of transportation in the early republic have used the concept of the "transportation revolution" to refer to the series of improvements to America's transportation infrastructure and technology which came at an unprecedented pace and scale in roughly the first half of the nineteenth century. George Rogers Taylor coined the

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[3] John Burke explains that the switch to high pressure engines in most American steamboats and the need for more powerful engines and boilers due to high tonnage and passenger loads made American casualty numbers on steamboats higher than in Europe. Mark Aldrich examines both statistical and anecdotal evidence that American railroads were more dangerous in the nineteenth century than those in Europe, and he offers several reasons why, including that the speed and weight of trains quickly outgrew weak rails, leading to derailments, and that most American railroads were built with a single rather than a double track, increasing the likelihood of collisions. John G. Burke, "Bursting Boilers and the Federal Power," *Technology and Culture,* 7, 1 (Winter, 1966), 7; Mark Aldrich, *Death Rode the Rails: American Railroad Accidents and Safety, 1828-1965* (Baltimore: Johns Hopkins University Press, 2006).

phrase in his 1951 landmark book *The Transportation Revolution, 1815-1860*.[4] Taylor

argued that technological innovations in transportation – namely roads, canals,

steamboats, and trains – facilitated the growth of market capitalism and a national

economy, bringing the young United States into an age of industrial modernity. His

paradigm has justifiably shaped much of the study of transportation and technology in

nineteenth-century America, but its lasting influence means the narrative of technological

innovation as progress created by contemporaries of these developments is embedded in

the dominant historical approach to the era.[5] Working within a framework that

emphasizes economic development and technological advancement, scholars writing

about the transportation revolution have generally been less attentive to setbacks and

challenges posed to American culture by technological innovation.[6]

   With an advanced transportation system and technological modernity the clear

end of the story, scholars of nineteenth-century transportation have, in general,

uncritically assumed Americans' acceptance of the technology and the industry's triumph

over its associated dangers. In studies of the transportation revolution, danger and disaster

often appear as secondary features of steam technology and manifestations of early

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[4] George Rogers Taylor, *The Transportation Revolution, 1815-1860* (New York: Rinehart & Company, 1951).

[5] Twenty-five years after the publication of Taylor's *Transportation Revolution,* Harry N. Scheiber and Stephen Salsbury proclaimed the book's continued status as the classic of the field. In 2007, Bruce E. Seely echoed the sentiment, saying "subsequent scholars have fleshed out the details, but the outline still holds." See Harry N. Scheiber and Stephen Salsbury, "Reflections on George Rogers Taylor's 'The Transportation Revolution, 1815-1860': A Twenty-Five Year Retrospect," *The Business History Review,* 51, 1 (Spring, 1977) and Bruce E. Seely, "Economic History as Technological History: George Rogers Taylor's 'The Transportation Revolution, 1815-1860,'" *Technology and Culture,* 48, 4 (Oct., 2007), 828. Notable books working within the paradigm of the transportation revolution include Carol Sheriff, *The Artificial River: The Erie Canal and the Paradox of Progress, 1817-1862* (New York: Hill and Wang, 1996), John Lauritz Larson, *Internal Improvement: National Public Works and the Promise of Popular Government in the Early United States* (Chapel Hill: UNC Press, 2001), and Daniel Walker Howe, *What Hath God Wrought: The Transformation of America, 1815-1848* (New York: Oxford University Press, 2007).

[6] Carol Sheriff's *The Artificial River* is one of the notable examples that does emphasize such social challenges that accompanied transportation advancements, with what she calls the "paradox of progress."

difficulties with unfamiliar and untried machines rather than as permanent features of advanced technological systems.[7] Throughout the nineteenth century, steam power's defenders cited relatively low annual casualty numbers to dampen perceptions of danger. The fact that these raw numbers look especially low when compared to annual deaths from automobile accidents in the twentieth century has likely contributed to scholars likewise downplaying the significance of the disasters, even though statistical studies evaluating deaths per miles traveled actually show steamboat and train deaths to be comparable to twentieth-century automobile fatalities.[8] Steamboat and train disasters have often made for an exciting side-story rich with thrilling anecdotes or an interesting episode in America's engineering history, but they have enjoyed only a limited role in the broader history of the transportation revolution. A fundamental premise of this study is that we cannot fully understand the dynamics and implications of the transportation revolution, or the larger modern transformations of which it was a part, without attending to danger as one of its most prominent features.

Nevertheless, the dangers and disasters of American steamboats and railroads have not gone unexamined. Their study has proven particularly significant in relation to broader histories of transportation safety and government regulation. As with any study

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[7] Only a few scant references to steam transportation's dangers appear in Taylor's *Transportation Revolution.* The same is true for Howe's *What Hath God Wrought,* published more than a half-century later.

[8] Louis Hunter notes the tendency to see the risk of death on steamboats in hindsight as minor. Using the estimate of 7,000 lives lost from steamboat accidents up to 1853 and adjusting for population, Hunter says the death total "does not appear to have been an excessive price to pay for the advantages of the steamboat." Statistical estimates evaluating safety as a ratio of deaths to miles traveled suggest steamboat and railroad risks were both on par with automobile risks in the twentieth century. Louis C. Hunter, *Steamboats on the Western Rivers: An Economic and Technological History* (Cambridge: Harvard University Press, 1949)*,* 521; Richard N. Langlois et al., "Bursting Boilers and the Federal Power Redux: The Evolution of Safety on the Western Rivers," Economics Working Papers, University of Connecticut DigitalCommons@UConn, May, 1994, accessed online at http://digitalcommons.uconn.edu/cgi/viewcontent.cgi?article=1351&context=econ_wpapers.

involving the history of steamboats in America, this dissertation owes a great debt to Louis Hunter's foundational work of technological history, *Steamboats on the Western Rivers.* Hunter's 1949 book is an extensive examination of the various technological and economic aspects of steamboats' rise to dominance in nineteenth-century American transportation, and a rare example of a study of the transportation revolution (though it predates Taylor's work) that takes seriously steam transportation disasters. Hunter identifies accidents, particularly boiler explosions, as a significant consequence of steamboat transportation, and his study is a tremendous source for data and technical information about the various types and nature of accidents that steamboats suffered. He also explains in detail the debates about the causes of accidents and traces the regulatory efforts that attempted to combat the problem.[9]

Since *Steamboats on the Western Rivers,* other scholars have further elucidated the debates about steamboat accidents and the resulting political and legal responses. In an influential 1966 article, John G. Burke framed the regulatory response to steamboat accidents within a broader argument about the emergence of a federal regulatory impulse in America. Burke identifies steamboat explosions as "an important factor in altering the premises concerning the role of government vis à vis private enterprise" and points to major regulatory acts in 1838 and 1852, which created an inspection service for steamboats, required licensing for steamboat engineers and pilots, and established strict rules for operation, as milestone legislation for government regulation of industry.[10] More recently, John Brockmann examined the rhetoric and content of the extensive debates surrounding the 1838 Steamboat Act in his book *Exploding Steamboats, Senate Debates,*

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[9] Hunter's discussion of accidents is primarily in Chapter 6 and 13 of *Steamboats on the Western Rivers.*
[10] Burke, "Bursting Boilers and the Federal Power," 2.

and Technical Reports.[11] In particular, Brockmann explains the influence of scientific

investigation and technical expertise on regulatory conversations about steamboat

accidents.[12]

Brockmann has also contributed significantly to our understanding of responses to

railroad accidents through his examination of steamboat and railroad accident

investigation reports. In his book *Twisted Rails, Sunken Ships,* Brockmann explores

evolving technical language used in public reports and details the local politics and

policies that shaped major accident investigations, tracing how Americans eventually

developed a consistent investigative system to apply to repeated accidents on both

steamboats and trains.[13] Another significant work on railroad accidents is Mark Aldrich's

book *Death Rode the Rails,* in which he analyzes the interaction of technological,

economic, and regulatory systems in the effort to make the particularly dangerous

American railroads safer.[14] Aldrich demonstrates political and economic motives for

improving safety on railroads, and argues that safety measures evolved within the context

of a distinctly American political economy. His explanation of the dynamics of the

American railroad system and why accidents occurred, like Hunter's analysis of

steamboat accidents, provides an essential foundation for my study.

These scholars have done much to advance our knowledge of the significant toll

steamboat and rail disasters took on American lives in the nineteenth century, even

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[11] R. John Brockmann, *Exploding Steamboats, Senate Debates, and Technical Reports: The Convergence of Technology, Politics and Rhetoric in the Steamboat Bill of 1838* (Amityville: Baywood Publishing Company, 2002).

[12] Another significant book exploring government policy relating to steamboat issues is Paul Paskoff, *Troubled Waters: Steamboat Disasters, River Improvements, and American Public Policy, 1821-1860* (Baton Rouge: Louisiana State University Press, 2007).

[13] R. John Brockmann, *Twisted Rails, Sunken Ships: The Rhetoric of Nineteenth Century Steamboat and Railroad Accident Investigation Reports, 1833-1879* (Amityville: Baywood Publishing Company, 2005).

[14] Aldrich, *Death Rode the Rails.*

though numbers on passenger fatalities are difficult to calculate with accuracy. National

statistics on steamboat deaths were not kept at all before 1852, nor were they kept for

railroad deaths prior to 1887. For much of the century, evidence is based in newspaper

reporting or limited state efforts to keep fatality records. Nevertheless, Louis Hunter

suggests that as many as 7,000 steamboat passengers may have died between 1807 and

1852, and he roughly estimates that 9,200 more died from 1860 to the end of the

century.[15] Aldrich, totaling the reported railroad fatalities from the very few states that

kept records, finds about 2,400 passenger deaths, which he argues is a vast

underestimation. Using alternate data compiled from reporting by the *Railroad Gazette,*

Aldrich estimates approximately 2,800 passenger deaths just between the years 1882 and

1890.[16] More detailed statistics after 1900 suggest that as late as 1912 railroad accidents

were the most significant cause of accidental death in America.[17]

Such analysis rightfully emphasizes the costs of steam-related dangers. I argue,

however, that the significance of that danger in nineteenth-century America goes well

beyond death tolls and political and legal influence. My study departs from the existing

literature on steam transportation disasters in its exploration of a distinct, many-layered

cultural history. In this study I define culture as a set of mutually intelligible attitudes,

practices, and symbols developed in relation to the experience of a particular moment in

space and time. The most sustained historical attention given to steam disasters has

focused on the history of transportation safety, framed chiefly as a governmental and

business policy concern; my study is a history of transportation *danger*, which I

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[15] Hunter, *Steamboats,* 521; 656.
[16] Aldrich, *Death Rode the Rails,* 309-318.
[17] Arwen Mohun, *Risk: Negotiating Safety in American Society* (Baltimore: Johns Hopkins University Press, 2013), 92.

understand in this study as a perceptually-driven cultural phenomenon. Scholars of steamboats and railroads have proven that steam technology was a driver of historical change, and that steamboat and railroad disasters were constitutive forces shaping the evolution of the transportation industry and American regulatory structures. My study demonstrates that steamboat and rail disasters were also drivers of cultural change.

Historians who have studied steamboat and rail accidents have often sensed their deep embeddedness in American popular culture and the public mind, especially because the regulatory response to these disasters clearly points to their larger cultural significance. It has long been clear that media and popular uproar about large disasters outweighed smaller but more prevalent risks and shaped the evolution of transportation safety; as Hunter writes, "what aroused public opinion and moved legislative bodies was less the cold calculation of total losses and relative risks than the shock of individual disasters."[18] Scholars have occasionally pondered the social and cultural milieu that fed the drive for high speeds and allowed for a more dangerous transportation system.[19] Others have noticed steam disasters' prevalence in American culture.[20] Indeed, the presence of steamboat and rail disasters in American life is difficult for the historian of nineteenth-century America to ignore. John Quincy Adams, Cornelius Vanderbilt, and Ulysses Grant were among the many thousands of Americans who survived

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[18] Hunter, *Steamboats,* 522.

[19] Hunter includes several pages about the cultural environment that celebrated speed and racing as a potential cause of danger on steamboats in *Steamboats on the Western Rivers,* 300-304; Robert Gudmestad includes a similar discussion of the culture of steamboat racing and explores some popular responses to accidents as part of his larger analysis of the Southern steamboat industry in *Steamboats and the Rise of the Cotton Kingdom* (Baton Rouge: Louisiana State University Press, 2011), 97-116.

[20] In *Exploding Steamboats,* Brockmann illustrates his book with examples of cultural productions concerning steamboat accidents, including poetry, songs, and games, some of which I analyze extensively in this study. Brockmann also notes that "just as the fascination with the positive aspects of the engines entered deep into the American imagination, so did the dangers of these engines." Brockmann, *Exploding Steamboats,* 57.

transportation disasters; Franklin Pierce, Mark Twain, and Nathaniel Hawthorne were among the many thousands who lost immediate family members to accidents. Images of steamboat and train disasters appeared all over – in the illustrated newspapers, on insurance cards and advertisements, in children's books, political cartoons, and on some of the best-selling art prints of the day. Fictional accounts of steamboat and train accidents can be found sprinkled through some of the century's best-known pieces of literature. Useful idioms like "blow off steam" and "train wreck" entered and remained in the lexicon. Steamboat and rail disasters were ever-present facts of nineteenth-century American life.

One goal of this study has been to fully reveal this ubiquity of steam disasters in nineteenth-century American culture, but the salience of steam-related danger lies deeper than even its strong cultural presence suggests. This study expands on the nascent ideas about the cultural milieu behind steam disasters that other scholars have pondered, but unlike other studies it also argues that steamboat and rail dangers were crucial in shaping Americans' conception of their modern lives. When we consider danger as a cultural phenomenon and move it to the center of the analytical frame, the focus necessarily changes. Thus, for example, while Mark Aldrich rightfully directs attention toward the more numerous small accidents that contributed to safety regulation and reform within the transportation industry, my study emphasizes the importance of large-scale disasters that became visible to a national public and shaped popular understanding of the apparent threat. Detailed accounts of local politics and responses to accidents and the emergence of federal interest in regulation and safety become richer stories if we fully understand the evolution of Americans' awareness of accidents as a feature of modern American

culture. While others have answered how American transportation became safer and how the push for safer travel reoriented American business, legal, and political structures, this study asks different questions with significant implications for our understanding of the development of American culture in the nineteenth century. What did it matter that these disasters were the products of technology, and the death and destruction they created was thus of human origin? How did steamboat and train accidents complicate cultural narratives that tied American values and the success of the republic to technological progress and spatial mastery of the continent? And how did we arrive at the mentality revealed in those pre-flight moments, which acknowledges the possibility of catastrophe, recognizes its unlikelihood, and ultimately deems it an acceptable aspect of our modern, mobile existence?

Answering these questions requires seeing steamboat and train disasters as particularly tied to the process of space-time compression in the United States. Scholars who have examined these events have had surprisingly little to say about the crucial fact that they were *transportation* disasters. This study spotlights the spatial dimensions of steamboat and rail disasters; it mattered that steam's dangers were inherently connected to the shifting character of travel and mobility, because the perceived annihilation of space and time by technology represented a fundamental condition of modernity. What scholars have alternatively labeled as space-time compression, time-space compression, or time-space distanciation is an old idea. One of the clearest ways many could describe the revolutionary changes wrought by new technologies in the nineteenth century was that humans' relationship to space and time had been forever altered. Writers like Ralph Waldo Emerson and Karl Marx, as well as a host of lesser-known observers, tied these

changes to the onset of a new era and a modern condition in which the challenges

distances posed to the flow of people, ideas, and capital across space had been

substantially limited.[21]

A number of scholars have further articulated the concept of space-time

compression in relation to the often amorphous subject of modernity. In *The Condition of

Postmodernity,* David Harvey identifies that condition with the constant acceleration and

intensification of social and economic interactions across vast spaces.[22] Anthony Giddens

also privileges "time-space distanciation" as the definitive modern transition in *The

Consequences of Modernity.* Giddens writes that modernity "increasingly tears space

away from place by fostering relations between 'absent' others;" in other words, through

modern technologies and social structures, individuals become connected to distant

individuals and places with whom they have no immediate knowledge.[23] Doreen Massey

similarly describes a modern sense of place as a moment in space-time defined by a

particular set of links and interconnections to that beyond itself. Massey illustrates this

with the example of walking down Kilburn High Road in London, from which it is

possible to see traces of connections to distant places through consumer goods,

advertisements, planes flying overhead, and ground traffic heading in divergent

directions.[24] In his discussion of "supermodernity," Marc Augé specifically emphasizes

modern transportation and communication networks, which he says expanded space and

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[21] Emerson described the concept in a lecture entitled, "The Young American," (1844), quoted in John F. Kasson, *Civilizing the Machine: Technology and Republican Values in America, 1776-1900* (New York: Hill and Wang, 1976), 120. Karl Marx used the concept in *Grundisse.* Karl Marx, *Grundisse,* trans. Martin Nicolaus (New York: Penguin Books, 1993), 524; 539.

[22] See David Harvey, *The Condition of Postmodernity: An Enquiry Into the Origins of Cultural Change* (Oxford: Blackwell, 1989), especially Part III.

[23] Anthony Giddens, *The Consequences of Modernity* (Stanford: Stanford University Press, 1990), 17-20.

[24] Doreen Massey, *Space, Place & Gender* (Minneapolis: The University of Minnesota Press, 1994), 4-5.

time to such a scale that the world seems available at an instant.[25] And according to

Wolfgang Schivelbusch, train travel constructed a new geography in which space was

dialectically both compressed, in that it took shorter amounts of time to get from one

place to another, and expanded, in that new distant places were incorporated into existing

networks.[26] Historians of the transportation revolution have recently been more attentive

to this tradition of spatial theory in explaining America's transportation developments.[27]

Like these theorists, I consider the reorientation of human relationships to space

and time and the stretching of social relations across space as definitive of the modern

condition. This study contends, however, that especially in the nineteenth-century United

States, space-time compression marked the transition to modernity in no small measure

because of its associated dangers. Space-time compression in America was partly a

product of revolutionary transportation technologies, themselves a result of a global,

epochal transition from an era dominated by organic energy and animate power to one

dominated by mineral energy and mechanical power. Lewis Mumford labeled this a shift

from the "eotechnic" phase – a "water-and-wood complex" – to the "paleotechnic" phase

– a "coal-and-iron complex."[28] For all of history humans had relied on organic energy

translated into human and animal muscle power. Once they accessed underground

minerals like coal and iron, humans inaugurated an industrial, technological age,

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[25] Augé, *Non-Places.*

[26] Wolfgang Schivelbusch, *The Railway Journey: The Industrialization of Time and Space in the Nineteenth Century* (Berkeley: University of California Press, 1986), 34-35.

[27] Examples include Richard White's discussion of "spatial politics" in relation to the transcontinental railroads in *Railroaded: The Transcontinentals and the Making of Modern America* (New York: W. W. Norton, 2011). Walter Johnson also analyzes the spatial aspects of the Southern steamboat trade in *River of Dark Dreams: Slavery and Empire in the Cotton Kingdom* (Cambridge: Harvard University Press, 2013), 4; 8.

[28] Lewis Mumford, *Technics and Civilization,* reprint (Chicago: University of Chicago Press, 2010), 109-110.

harnessing these resources to power civilization to new heights in production and movement. For transportation, the result was a gradual separation of movement from nature; iron and coal combined in the steam engine to power motion against natural limits and to previously unimaginable speeds.[29]

But in revolutionizing mobility and power, this transition also produced new sources of danger with capabilities for destruction that were uniquely modern. It was not that travel was not dangerous prior to steam power; rather, steam altered the actual physics of power and motion. The expansive potential of steam that enabled the high speeds that conquered American rivers and rails held within it the potential energy to create massive explosions; the higher speeds achieved by these machines increased the force of impact in the event of collisions and derailments. The annihilation of space by transportation technologies must be understood as a process with the inherent potential for physical destruction.

The technological revolutions behind space-time compression not only created new dangers, they also shaped the manifestation of those dangers in American society. The dangers of steam transportation were not simply experienced by those who encountered disaster directly, but rather they became commonly familiar to Americans as features of modern travel. As historian Will Mackintosh writes, studies of the transportation revolution have focused on changing material conditions of travel and their effect on social and economic structures but they have often neglected the "lived

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[29] This transition in energy and power is succinctly and eloquently described in Mark Fiege, *The Republic of Nature: An Environmental History of the United States* (Seattle: University of Washington Press, 2012), 244-246 and 362-379. Wolfgang Schivelbusch also provides a brief summary of these developments in relation to the railway in *The Railway Journey,* 1-5.

experiences of travel," which also underwent tremendous change.[30] Among these changes

was that travel itself became more frequently collective in nature as individual travelers

on foot or horseback or passengers among a few in coaches became passengers among

many in steamboats and trains. Travelers increasingly shared the same spaces and their

traveling experiences grew more homogenous. Also, much of inland travel especially

shifted from self-directed motion to movement directed by technology and by others.

Travelers on steamboats and trains were passengers, carried to their destinations on a

schedule, pace, and route designed for them. Travel grew to be a commodity – a

standardized service provided to traveling Americans rather than something they

undertook largely on their own.[31] These features defined the new "public transportation"

and the standard experience of the public traveler. The standardization of mass

transportation gave rise to a traveling public that shared in the incidents of steam travel,

danger among them. Danger was no longer a personal concern but one shared by fellow

travelers who all depended on technology and its human operators for their safety, and

because travel was an increasingly standard experience, every steamboat or train disaster

revealed the vulnerability of travelers generally.

Just as significant in shaping Americans' experiences of these new dangers were

space-conquering communication technologies. Running parallel to the transportation

revolution was what scholars have called a "communications revolution" that was

facilitated by faster, more extensive transportation and involved the growth of print

networks, dramatic increases in the quantity and variety of printed material made possible

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[30] Will Mackintosh, "'Ticketed Through': The Commodification of Travel in the Nineteenth Century," *Journal of the Early Republic,* 32, 1 (Spring 2012), 63.
[31] See Mackintosh, "Ticketed Through."

in part by steam-powered printing, and eventually the emergence of telegraphic communication in the 1840s.[32] Thus steam's dangers emerged just as communication technology and infrastructure gained the capability to make them widely known. Disasters provoked substantial newspaper coverage, published commentary, and visual representation, and experiencing them indirectly as public, mass spectacles became a collective activity for a national reading public. Newspaper coverage therefore aided a process of collective imagining and the creation of a self-aware public along the lines described by the theoretical work of Benedict Anderson and Jürgen Habermas. Anderson writes of newspapers that they create imagined simultaneity among distant events and allow readers an awareness of the shared ritual of reading the newspaper and the common knowledge gained by that reading.[33] Habermas described the role of print in the creation of a public that "read and debated about itself" and therefore developed mutually understood public discourses.[34] In the discursive arena that disasters opened up, readers developed a shared familiarity with the dangers of steam travel and, crucially, realized their common identity as modern travelers. With the aid of print, a diffuse and abstract reading public coalesced as a traveling public collectively aware of and threatened by the dangers of steam. Examining danger thus reveals that the transportation and communications revolutions, which together gave rise to space-time compression, did not just progress in parallel but were mutually reinforcing – disasters made for compelling print and print made the dangers of travel a broadly shared national experience.

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[32] Howe's *What Hath God Wrought* is the most significant example of the communications revolution paradigm.

[33] Benedict Anderson, *Imagined Communities* (New York: Verso, 1983), 22-36.

[34] Jürgen Habermas, *The Structural Transformation of the Public Sphere: An Inquiry into a Category of Bourgeois Society* (Cambridge: MIT Press, 1989), 43.

Americans' experience of space-time compression through steam power thus cannot be separated from their experience with steamboat and rail disasters, and in fact, attending to transportation dangers greatly complicates the dynamics of space-time compression and modernity that others have identified. Much of the theoretical analysis of space-time compression suggests that by contracting space and time, modern technologies create a sense of placelessness, in which local distinctions disappear and places only carry meaning as origins and destinations.[35] Schivelbusch, Augé, and others have written that modern transportation and communication technologies effectively eliminate the individual's relationship to the space that is traversed with such ease and quickness. Transportation disasters demonstrate, however, that these experiences only apply to smooth, problem-free journeys. Steamboat and rail accidents physically halted the process of overcoming space, highlighting the "in-between-ness" of disaster-stricken travelers whose distance from their origins and intended destinations suddenly became significant. Modernity undeniably meant expanded mobility and access to distant places, but it also meant that such access and one's own progress through space could be disrupted at any given moment.

Paradoxically, though, while disasters halted the annihilation of space they were also often the catalysts in the creation of new networks of social relations across vast spaces. Steam transportation disasters were fundamentally place- and space-*making.* When disaster hit, especially in the middle of a standard steamboat or rail route, the site

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[35] Schivelbusch (like plenty of contemporaries of steam transportation) says that the railroad, in particular, "knows only points of departure and destination" because the speed and nature of steam travel "destroyed" the intermediate traveling space for passengers and residents in the towns on either end of the route. Marc Augé calls these sites of transience "non-places" that lack the defining characteristics of place. Schivelbusch, *The Railway Journey,* 38; Augé, *Non-Places.*

of the disaster became the locus of new connections across space created by the discourse about the accident and steam's dangers that always followed. Though every day steamboats and trains traversed the continent carrying passengers from one place to another, it was often a disaster that suddenly brought their movement to the forefront of national attention. Print networks and later telegraphic connections made a steamboat explosion on the lower Mississippi national news carried along transportation and communication highways to be printed in New York and Washington. Thus it was disasters that often revealed to Americans the expanding connections and accessibility of distant locales that defined their modern lives. Steamboat and rail disasters highlighted the separation of victims from loved ones, often confined victims to graves distant from their homes, and challenged progressive visions of the technological conquest of American space. And yet because they filtered through expansive, modern communication networks, disaster responses also made nameless passengers known as individual travelers, linked places where disasters did or could occur, and constructed experiences of modern life shared across vast distances.

Only by understanding danger and tracing Americans' responses to transportation disasters, then, can we fully appreciate space-time compression's influence on American culture in the nineteenth century. The experience of space-time compression and its associated dangers acquainted Americans with a new, more mobile existence and with the nature of technology in the modern world, offering a profound lesson in the possibilities and perils of modern life. Through steamboat and rail disasters Americans confronted a world in which power traditionally understood as restricted to the realm of the divine suddenly seemed to be in human hands. Disasters made apparent that

technology was a powerful tool for mastering nature but it did not necessarily bring a more controlled and rational world. Instead, Americans saw that in relying on technology humans gained control of nature but also ceded control to material forces that could not always be contained.

Faced with this new technological reality, Americans had to adapt and learn to manage the role of risk and danger in their lives. Here, again, Anthony Giddens is instructive. Like many scholars of the subject, Giddens writes that modernity is a "double-edged phenomenon," and he identifies danger and risk within the "dark side" of modern development. The concept of risk, associated with the awareness of contingencies based on "human moral imperatives, natural causes, and chance," emerged in the modern era as a way of organizing danger, understood as "a threat to desired outcomes." Giddens describes the development of "expert systems" – "systems of technical accomplishment or professional expertise that organize large areas of the material and social environment in which we live today" – as modern institutions designed to manage risk. Among such expert systems he includes the automobile and the airplane, both "permeated by expert knowledge" that allows users to accept the inherent risk due to trust that the expert system has minimized it.[36]

Following Giddens and others, I detail the rise of a conception of risk associated with travel, by which I mean an evaluation of contingent threats derived from the conditions of modern transportation – namely the reliance on complex, powerful technology and its management by human operators. As numerous scholars have detailed, this was an essential adaptation to the dangers of steam transportation –

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[36] Giddens, *The Consequences of Modernity,* 7; 27-35.

Americans learned to manage risk and make it acceptable by investing trust in expert knowledge and a large-scale transportation system that, despite occasional accidents, also carried millions of people around the country at high speed each year with ease, convenience, and safety.[37] Through government regulation, official investigations of accidents, safety reforms put in place by the transportation industry, and the rise of the insurance industry, Americans exhibited a fully modern accommodation of steam's associated threats.

My study expands on this narrative by further explaining the role that public discourse and cultural perceptions of steam's dangers played in the development of regulation and risk management. Early on, public ignorance about the workings of steam engines and boilers forced misguided fixes that obscured more serious engineering flaws. But it was also public printed discourse that identified a nationwide pattern of transportation disasters, connected the public to distant tragedies, and heightened the perceived danger and necessity of action by illustrating the horrific destruction of steamboat and rail accidents. Lawmakers were not immune from these narratives and the pressure they brought, and steamboat legislation was enacted despite statistical claims that steamboat dangers were relatively low. The other major influence of public discourse on regulation involved the conscious self-identification of modern travelers as consumers with particular rights that accompanied their access to modern services – in this case,

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[37] On the management of risk in nineteenth-century America see, for example, Mohun, *Risk;* Jonathan Levy, *Freaks of Fortune: The Emerging World of Capitalism and Risk in America* (Cambridge: Harvard University Press, 2012); and Dan Bouk, *How Our Days Became Numbered: Risk and the Rise of the Statistical Individual* (Chicago: University of Chicago Press, 2015).

modern public transportation. American travelers were among the first and largest bodies of consumers to be identified as deserving of government and legal protections.

Nevertheless, the rise of accident investigations, safety measures, and regulatory structures is only one part of the story of how Americans managed the new forms of danger created by steam-powered transportation. Alongside the more familiar story of risk is a story about danger, again understood in this study as the threats that actually existed or were perceived to exist as features of expanded mobility in the nineteenth-century United States. The dangers of steam transportation represented not just a practical problem of public safety but a profound cultural challenge. Political, business, and scientific attention to transportation safety reduced risk, but as other scholars have noted, those risks could not be eliminated, so Americans also necessarily had to learn to live *with* these dangers. The technologies of space-time compression that brought Americans in contact with new dangers also created the spatially-expansive social connections that allowed Americans to respond and adapt to their new shared technological reality. And in fact it was disaster that typically encouraged Americans to enact these new modern spatial realities and social possibilities. Disasters brought forth links between a scattered public and victims suffering in often unfamiliar locations, but not in unfamiliar positions – disaster responses allowed Americans to call upon their own familiarity with travel to understand themselves as tied to far-off victims and fellow travelers around the nation. Rather than seeing a broad, highly functional system, these responses focused attention on the highly visible and seemingly ever-present disasters of steam transportation and the victims who regularly suffered injury and death on steam-powered machines.

The cultural accommodation of catastrophic danger as a feature of modern American transportation, and modern American life, is at the core of this study. I argue that even as systems for managing risk emerged, the methods of culturally managing real and perceived transportation dangers persisted. Though different than the risk response, the adaptation to danger, involving shared public consumption of spectacular events, the transformation of disasters into meaningful features of mass culture, and the creation of social relations across space that articulated a national traveling public, was itself thoroughly modern. By century's end Americans' dealings with steamboat and rail disasters cultivated a dual-mentality: though Americans were largely removed from real danger they were intimately aware of it, and though familiar with catastrophe they understood it as unlikely and therefore accepted it as a feature of their modern lives.

Accessing cultures of the past is a challenge, one I have approached through critical discourse analysis. I consider the texts in this study as reflections and evidence of historical reality, but I also ask how they are structured by and reshape the social and cultural world in which they exist. Unraveling the cultural discourses surrounding danger and transportation in the nineteenth century necessitates analysis of a wide array of texts, which I examine as much as possible not in isolation but in relation to the broad discursive domain they collectively created. The focus on discourse has guided two significant decisions concerning my approach. First, this study treats steamboats and steam locomotives together as machines of steam transportation. These two modes of transportation represent two waves of the transportation revolution and had important differences, not least in terms of the nature and dynamics of the dangers they presented. Still, their respective tenures overlapped significantly, and more importantly, in public

conversations both formal and informal, and especially those about danger and disaster, steamboats and trains were often discussed together. Second, the nature of public discourse shaped my selection of and approach to particular events. A steamboat disaster like the explosion of the *Moselle,* which killed a large number of people and also inspired extensive discussion about steam's dangers on the local and national level, receives more attention in this study than the more deadly *Sultana* explosion, which despite still being the largest single transportation disaster in American history was significantly overshadowed by news related to the end of the Civil War and Abraham Lincoln's assassination. Also, I have chosen to investigate danger and the steam transportation disaster broadly as cultural phenomena, and I therefore draw upon general discourse and commentary on many disasters rather than case-studies of a few individual events.[38] My methodology reflects my assertion that the issues related to danger and steam power were national in scope and that the public did not just see these disasters locally and in isolation but as a major feature of their modern existence.

This is a story about a particular transportation regime dominated by steam power and its associated mobile machines – the steamboat and the steam train. Thus the study is bounded by the steam era, running roughly the length of the nineteenth century, though it is framed briefly by the transportation systems that came before and after. Chapter One serves as a prologue to the story of danger and the transportation revolution. It explores

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[38] There are numerous histories of individual disasters, including several on the *Sultana* explosion. See, for example, Jerry O. Potter, *The Sultana Tragedy: America's Greatest Maritime Disaster* (Gretna, Louisiana: Pelican Publishing Company, 1997); Alan Huffman, *Sultana: Surviving the Civil War, Prison, and the Worst Maritime Disaster in American History* (New York: HarperCollins, 2009); Charity Vogel, *The Angola Horror: The 1867 Train Wreck That Shocked the Nation and Transformed American Railroads* (Ithaca: Cornell University Press, 2013); and Thomas E. Corts, ed. *Bliss and Tragedy: the Ashtabula Railway-Bridge Accident of 1876 and the Loss of P. P. Bliss* (Birmingham: Samford University Press, 2003).

the difficulties of travel prior to steam's application to transportation and the social, cultural, economic, and political momentum for improved mobility that led Americans to herald the arrival of steam as transformative on all fronts. Chapters Two and Three deal with initial responses and retellings, particularly how print media acquainted the American public with the emerging phenomenon of steam-related transportation disasters. Chapter Two describes how and what the public learned about steamboat and rail accidents and the process by which the dangers of steam travel became an issue of national importance. As disaster reports exposed an emerging pattern of danger, detailed descriptions and images brought the disasters to life. Chapter Three analyzes how these recreated scenes framed steam disasters as distinctly horrifying and fascinating.

Chapters Four and Five deal with interpretations. Once transformed into narratives, steamboat and train accidents offered important lessons and forced both individual and national reflection. Chapter Four details how the tragedies of steam power challenged traditional moralizing narratives about death and disaster, instead prompting religious observers and secular writers to decipher their distinct lessons and prescribe human responses to a modern, technological age. Chapter Five dissects a distinct but not unrelated conversation sparked by disasters about the virtues and dangers of speed, the hallmark of modern transportation. The final two chapters examine answers and accommodations. One accommodation, the subject of Chapter Six, focused attention on the common interests and concerns of a modern collective body, the traveling public, that could counter the dangers of modern travel by scrutinizing the transportation industry and asserting the right of the traveler to safe passage. Finally, Chapter Seven details the rise of another narrative that stressed the relative safety of steam transportation and identified

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its dangers as manageable risks, even as those dangers became entrenched in Americans' image of modern transportation and modern life.

A final note – from the start of this study I sought to call attention to the significance and the persistence of individual disasters and to elevate nineteenth-century Americans' thoughts, voices, and experiences concerning them. Even so, it is easy to get lost in the seemingly endless line of destructive accidents apparently distinguished only by locations and casualty numbers. There was a moment early in my research when I was sitting in an archive swiftly moving through hundreds of newspaper articles – one "awful calamity" after another "frightful disaster" – and I started to become desensitized (a response shared by those reading the daily papers at the time). Then I saw something different – a story of an 1856 accident on a train carrying hundreds of Sunday School students to enjoy a picnic away from their city home. Many of the children died, many more were wounded, and a guilt-ridden employee who survived the crash committed suicide the following day. This story jolted me out of the monotony, as it is fair to assume it may have for those opening their newspapers in the days after the disaster. The people who died in these events were numerous, they were often nameless, and they are now long dead – but each of them lived, and for each of them there was someone reading the newspapers for whom this was not just another "awful calamity." I have tried my best to write with that in mind.

Chapter One:
America Welcomes Steam

"Where are You going?"

The traveler who arrived late one night in October 1704 at Madam Billings's

home near Dedham in the Massachusetts Bay Colony immediately met this and other

questions. "What in the world brings You here at this time of a night?" the eldest Billings

daughter asked, "I never see a woman on the Rode so Dreadfull late… Who are You?"[1]

The traveler was Sarah Kemble Knight, a widow from Boston on her way to New Haven

and then to New York to help settle the estate of a recently deceased relative.[2] Her

interrogator's surprise faded when Knight was followed in the door by John, her guide,

who knew the Billings family and recommended the lodging. Still, suspicion of travelers

was not uncommon at the time, and the questions directed to Madam Knight suggest

much about the nature of travel in early colonial America. Although significant traffic

moved up and down the North American coast, long-distance journeys on land and

interior waterways were rarely, if ever, undertaken by early colonists. Distances within

and between the colonies were vast, and the continent's terrain was challenging, making

inland travel and transportation extraordinarily difficult, slow, and often dangerous.

Seeing an unfamiliar traveler on an interior road was surprising; seeing a woman

apparently traveling alone even more so. With travel such a tremendous undertaking, the

question "Where are you going?" may have been as much about why Knight would leave

home as about where she was headed.

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[1] Sarah Kemble Knight, *The Private Journal of a Journey from Boston to New York, in the Year 1704, Kept by Madam Knight* (Albany: Frank H. Little, 1865), 23.
[2] Sargent Bush Jr., "Sarah Kemble Knight (1666-1727)," *Legacy,* 12, 2 (1995), 112-113; A. K. Sandoval-Strausz, *Hotel: An American History* (New Haven: Yale University Press, 2008), 11.

In her diary of her journey, Knight frequently used the spelling "travail" as she referred to her "travails" or fellow "travailers." The conflation of the terms in the English lexicon before the nineteenth century is significant. The word "travel" comes the French "travail" and from the Medieval Latin word "trepalium" – an instrument of torture.[3] To be a traveler was to travail, to labor through a challenging and potentially dangerous passage. Mobility involved the removal from one's settled home, a place of security and refuge, to the unfamiliar and uncertain road. It took Sarah Knight nine difficult travel days to go from her home in Boston to New York. Her journey, not even a full day's ride for later Americans traveling by train, was a considerable one in 1704, and she did not take it lightly. Knight ended her narrative thanking her "Great Benefactor" for "carying forth and returning in safety his unworthy handmaid."[4]

Prior to the invention of steam-powered transportation, colonists and then early Americans struggled under the "tyranny of distance."[5] Americans moved their goods and themselves across space much as people had for millennia – through their own power or that provided by animals, gravity, current, and wind. The geography and terrain of the eventual United States made mobility a particular challenge, and as the country grew and its people spread across the land, the consequences of limited mobility became increasingly apparent. Americans whose personal or business lives demanded long-distance journeys saw the nation's transportation infrastructure gradually improve but the fundamental difficulty and inconvenience of travel largely remain. On a grander scale, poor transportation posed a threat to the health of the nation. Hoping to unite a diverse

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[3] "Travel;" "Travail," The Oxford English Dictionary.
[4] Knight, *Private Journal,* 85.
[5] The phrase is used by Daniel Walker Howe, *What Hath God Wrought: The Transformation of America, 1815-1848* (New York: Oxford University Press, 2007).

and dispersed populace, foster an informed public, and draw from it elected representatives to assemble physically and run a republican government, many of America's early leaders considered improved means of transportation a national priority. Thus, when American inventors used steam to power boats against the current and copied and improved English experiments applying steam power to land carriages moving on rails, confidence in the country's future was high. Americans welcomed steam as a force that would make travel easy, predictable, and safe, and one that would help ensure the success of the young nation's bold republican experiment.

The initial patterns of colonial settlement along the eastern coast of North America limited the necessity of inland mobility. Because of the colonies' European orientation and the difficulty of penetrating the Native-American inhabited wilderness, early American colonists settled primarily in port towns along the coast and in areas along inland waterways reachable by ship. Goods and people moved about the colonies on water, carried by ships along the seaboard and floated downriver on wooden keel boats, flat boats, and canoes. As the colonial population grew and pushed many further inland, the continental river system proved advantageous, and rivers became the colonies' major transportation highways. Land travel was nevertheless inescapable, particularly for settlers in frontier areas far from rivers. Post roads and others built during wartime increasingly connected cities in the East, and by the end of the eighteenth century roads designed for regular stagecoach lines greatly expanded the possibilities for travel in New England and the mid-Atlantic. Even then, much overland travel took place on a network of rough country roads and trails, especially in the backcountry. Many of these were old

Indian trails that frontier dwellers relied on to reach backcountry stores where retailers had transported goods.[6]

The colonies' slow-developing transportation infrastructure meant colonists traveled primarily out of necessity. The most frequent travelers of the eighteenth century were those holding positions that demanded it – circuit-riding judges and ministers, postal carriers, and eventually members of the United States Congress. Many colonists experienced a transatlantic passage, and as the population expanded into frontier areas, many more endured the long westward journey to their new homes. Otherwise, long-distance journeys were rare and they were always significant undertakings. Unless there were regular stagecoach or coastal packet lines to their destinations, travelers had to determine their own overland route and typically piece together their transportation along it. Travelers therefore needed access to a means of conveyance, often a horse or carriage, and geographical knowledge of the route. If they did not know the route themselves, travelers often procured local guides familiar with the land and terrain. Finally, travelers had to secure provisions and overnight lodging. Fortunately for Sarah Knight, post roads connected various New England towns by 1704, making her route fairly clear. For travel guides, Knight drew upon relatives and friends, but also volunteering strangers met along the way. Like many other travelers, Knight also arranged to travel with a postal rider for several legs of the trip. For lodging, Knight had relatives to stay with in New Haven and New York, but in between she found accommodation in private homes and public houses.

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[6] Wolfgang Schivelbusch writes that later European travelers were amazed by the extent of inland water navigation and traffic in America. Wolfgang Schivelbusch, *The Railway Journey: The Industrialization of Time and Space in the 19th Century* (Berkeley: University of California Press, 1977), 94; Ruth Schwartz Cowan, *A Social History of American Technology* (New York: Oxford University Press, 1997), 94; George Rogers Taylor, *The Transportation Revolution, 1815-1860* (New York: Rhinehardt and Company, 1951), 13.

Public houses, also called inns or taverns at the time, typically served both traveling boarders and locals in for a drink. These inns were often the subject of widespread disdain among travelers frustrated by quality of the accommodations or annoyed by the tavern's drunken patrons (some of whom added color to Knight's narrative).[7]

Travel in the eighteenth century required such significant planning in part because it took so long to get anywhere. Travel was almost always a multi-day affair because, by modern standards, it was so slow. Flatboats and keelboats on American rivers topped out at about five miles per hour downriver. Travel upriver required boatmen to use poles or oars, or to pull the boat using towlines connected to trees on the shore that allowed for slow progress at about two miles per hour. A journey from Pittsburgh to New Orleans took about four to six weeks by river boat and four months or more in the other direction. Canals provided smoother, but not faster, travel. Overland journeys, less direct and more cumbersome, took significantly longer. Stagecoaches, where roads were wide enough to accommodate them, typically carried passengers at a speed of six to eight miles per hour. Most Americans traveling any considerable distance had to combine these various forms of conveyance to get to their desired destinations, with transfers adding to delays. Knight's journey was on horseback, though it included several river crossings that often delayed travelers, as bridges were rudimentary if present at all. The roughly two-hundred

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[7] Will Mackintosh, "'Ticketed Through,': The Commodification of Travel in the Nineteenth Century," *Journal of the Early Republic,* 32, 1 (Spring 2012), 61-89; Sandoval-Strausz, *Hotel,* 15-20.

mile trip from Boston to New Haven was short relative to the expanse of the British colonies, but it still took Knight a week to complete.[8]

Because it was lengthy and laborious, travel in the colonial and early national period was also noteworthy, and Knight, like many travelers, produced a detailed narrative of her trip. Knight's narrative, which is filled with descriptions of the challenges and inconveniences of her journey, fits well into the genre of travel writing in the era before steam-powered transportation. As Carl Thompson has described in his analysis of European Romantic travel writing, recounting the dangers and suffering one encountered while traveling was a frequently employed writing convention, so common that accounts of dangerous situations marked an authentic travel experience.[9] John, Sarah Knight's first guide, quickly advised her about the troubles she might encounter away from home, and on their first leg the pair rode through darkness and fog and then through a swamp to reach the Billings home. Knight and her guides usually traveled between twenty and thirty miles each day, their progress often stalled by delays at difficult river crossings or slowed by poor roads "Incumbred with Rocks" which, Knight said, "were very disagreeable to my tired carcass." On her return trip, winter storms and icy conditions made progress even slower. Delays and unforeseen obstacles sometimes foiled travelers' intended schedules. Knight remarked with despair that accommodations were too far apart on the most difficult sections of the journey. Then, on what was supposed to be the final day of her trip, the muddy roads characteristic of a New England March forced

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[8] Donald T. Zimmer, "The Ohio River: Pathway to Settlement," in *Transportation and the Early Nation,* ed. Harry N. Schieber (Indianapolis: Indiana Historical Society, 1982), 64-65; Robert C. Post, *Technology, Transport, and Travel in American History* (Washington D. C.: American Historical Association, 2003), 12.
[9] Carl Thompson, *The Suffering Traveller and the Romantic Imagination* (New York: Oxford University Press, 2007).

Knight to stay an extra night in Dedham, leaving her "tired and dispirited and disapointed."[10]

Sarah Knight's trying experience with travel was commonplace in the eighteenth and into the nineteenth century. Travel away from home brought one into contact with the unfamiliar and exposed one to unpredictable natural conditions, particularly in areas less developed than the Northeast. Roads were poorly marked and maintained, and many old Indian trails were no more than a foot wide, making it easy to get lost. Even Iroquois messengers claimed they often got lost, and one frontier translator's list of important phrases included the commonly used "I have miss'd the Way" in various languages. When it was not frighteningly foreign, travel over land was irregular, uncomfortable, and downright annoying. Knight's complaints about the discomfort of a rough day of riding and the constant confrontation with the elements find echoes in the words of travelers throughout the century. A messenger on the Pennsylvania frontier told an Iroquois counterpart, "it was enough to kill a Man to come such a Long and bad Road over Hills, Rocks, Old Trees, and Rivers, and to fight through a Cloud of Vermine, and all kinds of Poisen'd Worms and creeping things."[11] At the conclusion of his two-month overland journey from Boston to New Orleans in 1815, William Richardson wrote, "to sum up the whole, my journey has been tedious beyond description."[12]

Conditions on roads were notoriously poor, making the already slow means of travel even slower. Bad roads earned the scorn of travelers everywhere, particularly in the

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[10] Knight, *Private Journal,* 22; 46; 36; 84.
[11] Conrad Weiser, quoted in James H. Merrell, *Into the American Woods: Negotiations on the Pennsylvania Frontier* (New York: W. W. Norton & Company, 2000), 130.
[12] William Richardson, quoted in Mackintosh, "Ticketed Through," 61.

rural areas of the frontier. One traveler put the frustration plainly in a poem composed for

a tavern register in Franklin, Indiana:

> The Roads are impassable-
> Hardly jackassable;
> I think those that travel 'em,
> Should turn out and gravel 'em.[13]

Responsibility for road building and improvement usually fell on local communities and

labor provided by residents whose personal obligations to farms and families made public

improvements a low priority. Typically, roads were left narrow, muddy, and full of rocks,

stumps, and sometimes animals. There was rarely much of a state-wide mechanism for

improvement. The legislature of Ohio passed an act in 1804 requiring stumps in roads be

cut to no more than a foot high; obviously the legislature did not envision Ohio's rural

roads as major highways.[14]

Travel on land was the most unpredictable, but waterways presented their own

challenges. Rivers were not always passable – changing river conditions or hazards like

falls and rapids could force detours or delays. While winter land travelers could still get

around by sled, freezing conditions could halt river traffic altogether. As artificial

waterways, canals supposedly offered travelers a more reliable experience, but they often

suffered the same problems of low water, obstructions, and freezing winters. The much-

celebrated Erie Canal was beset by seasonal inconvenience from its opening in 1825,

with boats in winter sometimes freezing in the water mid-journey and spring flooding

making the canal unusable for a time.[15] Regardless of conveyance, travel in the colonies

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[13] Zimmer, "The Ohio River," 61.
[14] Taylor, *The Transportation Revolution,* 15-16.
[15] Carol Sheriff, *The Artificial River: The Erie Canal and the Paradox of Progress, 1817-1862* (New York: Hill and Wang, 1996), 75-76.

and the early nation was difficult and irregular. When travelers left home on an extended journey, they had reason to expect they would not arrive at their destination when they meant to.

Nor could travelers be sure they would arrive in the same shape in which they left. The potential dangers of travel on interior waterways and roads were enough to make travelers anxious and often fearful. Knight wrote of her first major river crossing that "the Cannoo was very small and shallow, so that when we were in she seem'd redy to take in water, which greatly terrified mee." Later crossings were no less terrifying after the initial experience: "no thoughts but those of the dang'ros River could entertain my Imagination, and they were as formidable as varios, still Tormenting me with blackest Ideas of my Approaching fate–Sometimes seing my self drowning, otherwhiles drowned." Riding on horseback presented dangers as well. On a bridge over river rapids, Knight's horse stumbled and she nearly fell into the water; she recovered, but was "extreemly frightened." Later, Knight was riding up a hill when her horse collapsed dead under her.[16]

Knight's perilous journey was typical of many others, especially when travelers ventured off major thoroughfares. Horses often struggled in the elements and frequently died from injuries, poison from plants or animals, or exhaustion.[17] Bridges, if they existed, were just as poorly kept up as roads. River crossings were dangerous but almost always necessary, and in winter they could prove especially deadly as ice was never totally certain. People traveling on rivers were constantly subject to wrecking from snags, waterfalls, and rapids. In general, travelers were exposed to the elements, and for long periods of time.

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[16] Knight, *Private Journal,* 26-27; 47.
[17] Merrell, *Into the American Woods,* 133.

With time came more consistent conveyances like stagecoaches and canal boats,

but hazards remained. A number of casualties occurred on the Erie Canal when

passengers on canal boats collided with bridges. The bridges, prevalent in populated areas

the canal passed through, were low, and passengers had to throw themselves flat on deck

to avoid disaster.[18] Poor roads threatened stagecoaches as much or more than travelers on

horseback. Several newspapers reprinted a harrowing accident story told by a passenger

on the stage between Baltimore and Annapolis. The driver fell from his seat and the

horses pulled the coach for a mile before the passenger was able to stop them. The

passenger then heard a groan from the driver, "who had been entangled under the

carriage, and thus dragged over the frozen ground." Both the drivers' legs were broken,

and he later died from the injuries.[19] Other examples described an axle breaking, leaving

several passengers bruised but alive, or a coach from Providence to Boston upsetting on

the road, severely injuring its eleven passengers.[20] These occasional reports likely

underrepresent how common stagecoach accidents were. A 1771 advertisement for a line

from Portsmouth to Boston noted the possibility of "some unforeseen accident," but said

"a careful driver will always be provided."[21] An 1814 broadside proposing a New York

to Philadelphia route included in the budget "two extra relays, in case of accident."[22] The

Kelloggs and Comstock firm created a lithograph called "Twelve miles an hour including

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[18] Sheriff, *The Artificial River,* 70.
[19] *Hampden Patriot,* April 8, 1819.
[20] *Newburyport Herald,* October 2, 1821; *Middlesex Gazette,* July 17, 1823.
[21] *New Hampshire Gazette,* August 9, 1771.
[22] Broadside, "Prospects of a Route proposed to be established between the cities of New York and Philadelphia," 1814, Early American Imprints, Series II, Readex.

stoppages" showing a coach driving another off the road, a comment, perhaps, on the dangers of reckless coaches.[23]

Transportation and infrastructure improvements over the course of the eighteenth century greatly expanded the access travelers had to various destinations and their means of arriving there. Road-building projects during the Seven Years' War and the Revolution and new postal routes enhanced the continental road network. Stagecoach lines facilitated greater mobility around the Northeast and improved over the century. A line from New York to Philadelphia established in the 1730s went only once per week and was a several-day trip, but by 1800 lines offered one-day service. Stagecoaches traveling on standard routes offered a more reliable form of land transportation than anything that had come before. Small canal bypasses also made water travel increasingly navigable and connected cities to inland waterways. These advancements made travel more available and practicable in the early United States than it had been a century earlier.[24]

Still, much of the fundamental experience of travel remained the same. Travel was slow, and poor road conditions often limited stagecoaches' modest speed. Access to destinations was difficult and usually involved multiple legs on different modes of transportation, especially since most of the country lacked the developed network of the Northeast. Packet ships for traveling along the coast were not always available or reliable. In 1815 William Richardson grew tired of waiting for a packet in New York and ended up electing an overland route to New Orleans combining stagecoach, ferryboat,

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[23] Print, "Twelve miles an hour including stoppages," Kelloggs and Comstock, 1812, Jay T. Last Transportation Collection, Box 1, Huntington Library.

[24] Patricia Cline Cohen, "Safety and Danger: Women on American Public Transport, 1750-1850," in *Gendered Domains: Rethinking Public and Private in Women's History,* eds. Dorothy O. Helly and Susan Reverby (Ithaca: Cornell University Press, 1992), 112; D. W. Meinig, *The Shaping of America: A Geographical Perspective on 500 Years of History, Volume 1: Atlantic America, 1492-1800* (New Haven: Yale University Press, 1986), 363.

horse, and foot travel. American roads and rivers would always carry some unpredictability, as they were very subject to changing weather conditions, flooding, obstacles, and other sudden hazards. This meant travel was by nature improvisational, with necessary adjustments to one's route and delays very common.[25] Dangers created by natural forces and elements continued to plague travelers even as infrastructure improved. Finally, no matter how one traveled, protection from nature's elements and security from injury or death were far from certain. A stagecoach rider going from New York to Washington in 1796 wrote that his carriage overturned and "some of the ladies, and other people in it were dangerously hurt." The traveler then added, broadly summarizing the status of American mobility: "through a large proportion of the United States, travelling is alike perilous."[26]

Anybody who journeyed through woods and rivers like Sarah Knight knew travel in America was slow, unpredictable, and dangerous, but even those who did not encounter danger personally learned to associate traveling with danger. As Carl Thompson writes, the attention to suffering seen in Romantic-Era travel writing is "not just a consequence of the fact that travel in early modern times was generally an uncomfortable and dangerous business. It also reflects an agenda in the reading and writing of travel writing."[27] For European writers trying to distinguish themselves as brave and rugged travelers, there was even pleasure to be gained from the adventure of a difficult journey. Travel in the North American interior was challenging enough that little pleasure is to be found in the recorded struggles of travelers like Knight and Richardson.

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[25] Mackintosh, "Ticketed Through," 61.
[26] Quoted in Ruth Schwartz Cowan, *A Social History of American Technology* (New York: Oxford University Press, 1997), 95.
[27] Thompson, *The Suffering Traveller,* 71.

Still, American travel narratives in the era before steam suggest that danger and difficulty were embedded in cultural conceptions of travel. Danger was not just an actuality of travel, it was an expectation. Americans of this period were challenged and largely contained by limited mobility. And yet they wanted and needed to travel, and that need would increase as the population grew, spread out, and sought connections over expanding space. Travelers commenting and complaining about slow progress and delays, the difficulties of the river or road, the lack of developed infrastructure, and the various perils of the journey spoke for an American public aware that reliable, consistent, safe transport eluded them. Theirs became part of a rising tide of voices calling for a transportation system that could accommodate a changing nation.

As James Madison sat down to defend the Constitution in essays published in the collection, *The Federalist,* he certainly had on his mind the history of political unions, particularly republics, and the variety of forces which had brought about their demise. From the start of the independence movement, there had been questions about the durability of a potentially independent republic. Even classically-educated colonial leaders could not recall "a single instance of a nation who supported this form of government for any length of time or with any degree of greatness."[28] In Madison's mind, though, the document produced by the recent convention ensured the lasting stability of republican government in the new United States, and preservation of the Union depended on the states ratifying that document. In *The Federalist,* Madison and his fellow writers

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[28] Carter Braxton, quoted in Bernard Bailyn, *The Ideological Origins of the American Revolution* (Cambridge: Harvard University Press, 1967), 142.

Alexander Hamilton and John Jay were responding in part to critiques of the Constitution raised by emerging Anti-Federalist writers.

Anti-Federalist writers made the implausibility of a free republic existing over an expanse of territory like that of the United States a central point of their resistance. The anonymous "Federal Farmer" referenced the "many great authors" who had shown free government to be incompatible with expansive territories and then made an exacting argument about the problem of a consolidated government in a country the size of the United States. "The United States contain about a million of square miles… and from the center to the extremes is about 800 miles," making it impractical to gather representatives into a single legislature at the center.[29] The Federal Farmer went on, noting that central courts would require significant travel for citizens to find justice. Even if a federal Supreme Court rotated to each of three regions during the year citizens would need to travel, on average, "100 or 200 miles to find this court." "I think it one of the greatest benefits in a good government," wrote the Federal Farmer, "that each citizen should find a court of justice within a reasonable distance, perhaps, within a day's travel of his home."[30] Notably, the writer measured distance in terms of days traveled; marking distance by time made an inherent reference to slow travel speeds. Thus, though the writer identified the vast distances of the United States as the challenge to good government, his argument held the implicit suggestion that slow travel, not physical

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[29] "Federal Farmer," "Letter I" in *Observations leading to a fair examination of the system of government, proposed by the late Convention; and to several essential and necessary alterations in it. In a number of letters from the Federal Farmer to the Republican* (New York: Printed by Thomas Greenleaf, 1787), 10, Eighteenth Century Collections Online.
[30] "Federal Farmer," "Letter II" in *Observations,* 11.

distance, was the prohibitive factor. A "reasonable distance" was relative to the level of mobility of the population.

Madison responded to this Anti-Federalist argument most directly in Federalist 14. There, the author contended that *democracies* were limited in the way the Federal Farmer had described, not republics. If democracies required *all* citizens to assemble frequently in the center, republics demanded that *representatives* be near enough to gather only as often as necessary. Madison pointed out that, already, representatives of the thirteen states had been "almost continually assembled." Then, like the Federal Farmer, Madison turned to evaluating distance. Tracing the boundaries of the nation, Madison computed the mean of North-South distance at "eight hundred and sixty-eight miles and three-fourths" with the mean distance between the Atlantic and the Mississippi no more than seven hundred fifty miles. This area was not much greater than that of Germany, Madison noted, where a representative diet was continually assembled.[31]

Clearly, Madison saw the warnings about the impossibility of central governance in the vast United States as overblown. Still, the concerns about how practical and efficient that governance would be were not lost on Madison. Madison recognized that the nation's present great size, which was sure to expand, called for a government of very particular design. The size of the country had been noted as exceptional since before its birth. In his *Summary View of the Rights of British America,* Thomas Jefferson asserted the vastness of the American continent and its distance from England as a reason for

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[31] James Madison, "Federalist 14," in *The Federalist,* ed. Jacob E. Cooke (Hanover: University Press of New England, 1961), 83-89.

independence.[32] Thomas Paine echoed the sentiment in *Common Sense,* saying "there is something very absurd, in supposing a continent to be perpetually governed by an island."[33] American geography, it was obvious, demanded both independence and a novel organization of republican government. "But why is the experiment of an extended republic to be rejected merely because it may comprise what is new?" Madison asked.[34]

Like the Anti-Federalist Federal Farmer, Madison in Federalist 14 translated abstract ideas into numbers and reduced the complicated questions of republican government and political unity to a debate about space, and by extension, the time required to cover it. How far could representatives realistically travel to assemble as one legislative body governing national affairs? How far could national representatives be from their local constituencies and still claim to represent them?[35] How would the government ensure that those citizens farther away from the center benefitted as much from the federal power as those near it? On one level, Madison knew these would be questions for later American leaders. He noted that his argument about the absolute size of the country held a major flaw – the prospect of future states carved from the Northwest Territory. Madison left that dilemma "to those whom further discoveries and experience will render more equal to the task." Madison had faith in the republican system outlined in the Constitution but he also anticipated further developments that could consummate the nation's republican vision:

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[32] Thomas Jefferson, *A Summary View of the Rights of British America* (Williamsburg, 1774), Eighteenth Century Collections Online.

[33] Thomas Paine, *Common Sense,* in *Thomas Paine: Collected Writings,* ed. Eric Foner (New York: Classic House Books, 2009)*,* 30.

[34] Madison, "Federalist 14."

[35] For an extensive analysis of this question, see Edmund Morgan, "The Founding Father's Problem: Representation" in *American Heroes: Profiles of Men and Women Who Shaped Early America* (New York: W. W. Norton & Company, 2010).

> The intercourse throughout the Union will be facilitated by new improvements. Roads will everywhere be shortened and kept in better order; accommodations for travelers will be multiplied and meliorated; an interior navigation on our eastern side will be opened throughout, or nearly throughout, the whole extent of the thirteen States. The communication between the Western and Atlantic districts, and between different parts of each, will be rendered more and more easy by those numerous canals with which the beneficence of nature has intersected our country, and which art finds it so little difficult to connect and complete.[36]

Republican government would make Americans a united and free people, but expanded mobility would make sure they remained so.

By the first decade of the nineteenth century, realization of Madison's vision seemed finally underway. In 1807, the Senate passed a resolution assigning Secretary of the Treasury Albert Gallatin the task of compiling information and proposals on the construction of public roads and canals to improve American transportation. After nearly a year of work, Gallatin published a lengthy report proposing twenty million dollars of federally-sponsored internal improvements. Gallatin's report, a somewhat tedious catalog of economic costs and benefits of numerous potential projects, was also a grand design for a transportation system fitted to the American scene:

> The inconveniences, complaints, and perhaps dangers, which may result from a vast extent of territory, can no otherwise be radically removed, or prevented, than by opening speedy and easy communications through all its parts. Good roads and canals, will shorten distances, facilitate commercial and personal intercourse, and unite by a still more intimate community of interests, the most remote quarters of the United States. No other single operation, within the power of the government, can more effectually tend to strengthen and perpetuate that union, which secures external independence, domestic peace, and internal liberty.[37]

Produced two decades after *The Federalist,* Gallatin's report was another answer to the ongoing questions about how to overcome the vast distances of the American republic.

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[36] Madison, "Federalist 14."

[37] Albert Gallatin, *Report of the Secretary of the Treasury; on the Subject of Public Roads and Canals* (Washington: William A. Davis, 1808), 8.

Robert Fulton, whose letter to Gallatin was appended to the report, recalled the earlier ratification debates: "Others by drawing their examples from European governments… have conceived these states to be too great an extent to continue united under a republican form of government." As a whole, the report argued that faster and more efficient transportation, via roads and canals, would bring about "mutual interests… mutual intercourse and mingled commerce" that would bind a scattered people together.[38]

"Mutual interests and intercourse" encompassed a wide variety of advantages that proponents of internal improvements foresaw. The most apparent and practical benefits were economic. For most of the early national period commerce in the United States was, as it had naturally been in the colonial era, almost entirely Atlantic-focused, and settlement patterns reflected that. In 1815, the population of the country was 8.4 million and only fifteen percent of that total lived west of the Atlantic coast states. The country's largest urban areas were port cities catering to Atlantic commerce. The nation's largest newspapers reflected the "seaward orientation" of commercial life, their coverage dominated by European affairs and Atlantic shipping news.[39] Much was starting to change, however. Population growth pushed more and more settlers to frontier areas and the new territory secured by the Louisiana Purchase. Americans' economic activities were also gaining a greater orientation toward a market capitalism that would direct the modern American economy.[40] Though American settlers had long been practicing a form of composite farming mixing production for household subsistence with production for

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[38] "Mr. Fulton's Communication," in Gallatin, *Report,* 122.

[39] Taylor, *Transportation Revolution,* 5-10.

[40] This transition to market capitalism has been detailed extensively in books such as Charles Sellers, *The Market Revolution: Jacksonian America, 1815-1846* (New York: Oxford University Press, 1991) and John Lauritz Larson, *The Market Revolution in America: Liberty, Ambition, and the Eclipse of the Common Good* (New York: Cambridge University Press, 2010), among others.

trade, the impetus to produce for domestic markets was growing.[41] Particularly after the War of 1812, during which Americans had experienced British blockades preventing Atlantic trade, domestic commerce took on new urgency.

As settlers flowed west and market connections increased between Eastern cities and western farmers, the condition of American domestic transport took center stage. Like private travel, most internal commerce took place on waterways because roads were so rough. At the beginning of the century it cost roughly the same to ship a ton of cargo over just thirty miles of land as it did to ship it across the Atlantic.[42] Rural farmers not close to rivers often organized trains of pack animals that would take goods through mountain passes or valleys to eastern centers. The difficulty of travel shaped commerce; only certain products (those most valuable, least bulky, and unlikely to spoil) could be carried.[43] Commercial transport on inland rivers was easier, but rivers posed the same obstacles to the transport of goods as they did to the movement of people, including dangerous natural hazards, climatic variance, and of course the fact that river travel was almost entirely dependent on a one-directional current. Westerners carrying their goods downriver to market in New Orleans typically had to brave the long and dangerous journey back north by foot. Demand for road improvements therefore came from both western farmers eager to overcome regional isolation and city-dwellers looking to gain better access to the goods being produced in the expanding West.

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[41] See Richard Lyman Bushman, "Markets and Composite Farms in Early America," *The William and Mary Quarterly,* Third Series, 55, 3 (July 1998).
[42] Howe, *What Hath God Wrought*, 40.
[43] See W. J. Rorabaugh, *The Alcoholic Republic: An American Tradition* (New York: Oxford University Press, 1981)*,* 76-88.

The inconveniences of domestic travel increasingly caught the attention of American leaders in the first decades of the nineteenth century. B. H. Latrobe, whose "communication" was published as an addendum to Gallatin's report, wrote in detail about challenges to river navigation and suggested that many of the country's existing canals suffered the same problems. American geography, he argued, posed obstacles to canal construction "which in no part of the world exist in so uniform, and certain a degree."[44] Robert Fulton, in his own response to Gallatin, lamented that poor transportation infrastructure meant many products that should be contributing to the nation were restricted to particular regions. Grain, for example, could not easily be transported over long distances so it was often made into whiskey; thus, in Fulton's mind, "the most important and abundant production of our interior country" only got to eastern centers by being "distilled to brutalize and poison society." Latrobe and Fulton both supported Gallatin's call for sweeping improvements to existing canals as well as new construction. Though Gallatin's report presented a number of arguments for internal improvements, economic development was the focus, with Gallatin including detailed computations of total cost and weighing the benefits. Fulton addressed the need for canals that would promote long distance commercial transport and roads that would improve individual mobility, linking both to national economic growth.[45]

Exchangeable goods were not the only valuable commodity being carried on American rivers and roads. Having founded a nation on the principle of a well-informed citizenry, the United States' early political leaders often promoted broad access to information, particularly the political news of the country. Of course, the spread of

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[44] "Mr. Latrobe's Communication," in Gallatin, *Report,* 82.
[45] "Mr. Fulton's Communication," in Gallatin, *Report,* 113; 108.

information was intimately tied to transportation. Prior to the invention of the electric telegraph in 1844, communication in the United States almost entirely relied on person-to-person contact and delivery of written communication. Even more advanced forms of communication like signaling and optical telegraphy required relative physical proximity. Communication and transportation were wedded, therefore, and the same challenges of distance, geography, climate, and physical obstacles that plagued transportation affected the flow of information around the country.[46]

Richard John argues that the value placed on spreading such information and the challenges posed by the country's size and dispersed population made an efficient postal system a national priority. For most of the country's early history, the post office was the government's largest agency, employing more workers than the army. Rather than personal correspondence, though, the mail of the early republic primarily consisted of newspapers bringing political information and news, often national, to readers around the country. Shortly after ratification, Benjamin Rush urged Congress to create an integrated postal network and allow newspapers to pass through the mail free of charge. The Post Office Act of 1792 made this possible, sparking both a "quantitative" and geographical expansion of the press.[47]

Of course, the expansion of the press and the postal service over America's vast geography depended on the efficiency of domestic travel, particularly over land. Gallatin emphasized this point in his report: "A secondary object, but of more importance to government than to individuals, would be the improvement… of certain portions of roads

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[46] Howe's *What Hath God Wrought* offers the most extensive analysis of the "communications revolution," its connections to transportation improvements, and its various effects on American political and social life.
[47] Richard John, *Spreading the News: The American Postal System from Franklin to Morse* (Cambridge: Harvard University Press, 1998), 30; 41.

leading to some points on the extremes of the union, intended principally for the purpose of accelerating the progress of the mail, and the prompt transmission of information of a public nature."[48] Individuals sought the benefits too, however. Citizen petitions delivered to Congress year after year asked for local post offices, and by extension, an expansion of travel networks.[49] This demand meant postal roads were among the first long-distance travel routes in the United States, and the transport of mail became the primary early funding source for American stagecoach lines. Travelers of the late eighteenth century often noted that the "mail stage" was the most reliable, or in the case of much of the western frontier, the only means of overland transport.[50]

The pursuit of information fed a desire not only for reliable, but also speedy, transportation, and newspapers tried to print and deliver the news before their competitors. Packet ships racing to bring European news to New York decreased Atlantic travel times over the first few decades of the nineteenth century, and eventually New York newspapers started sending schooners out to meet incoming packet ships and gain a few minutes' advantage.[51] As early as 1782 Congress defended the expansion of the Post Office, saying the safety and commercial interest of the country depended on "the communication of intelligence with regularity and despatch." It did not take long before the U.S. Postal Service became a symbol of speed and consistency. In terms of reputation, then, American transportation lagged behind communication. Early

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[48] Gallatin, *Report,* 66.
[49] Howe, *What Hath God Wrought,* 225.
[50] John, *Spreading the News,* 98-102.
[51] Howe, *What Hath God Wrought,* 222.

stagecoach lines subsidized by the Post Office to carry mail purposefully decorated their slow-moving carriages with "U.S. Mail," trading on the mail's reputation for speed.[52]

Still, improvements were slow, and Congress's concerns about regular and fast communication eventually proved prophetic. Nothing highlighted the need for more efficient transportation and communication like the War of 1812. Famously, slow ocean communication due to delays in Atlantic crossings profoundly shaped both the start and the end of the war. Just two days before the United States declared war on Great Britain, British Foreign Secretary Lord Castlereagh had announced the suspension of restrictions on American commerce. President Madison later said news of the announcement, had it arrived sooner, would have at least temporarily halted the war declaration. Then, in early 1815, American and British forces engaged in the bloody Battle of New Orleans unaware that two weeks earlier the Treaty of Ghent had supposedly ended hostilities. Storms at sea meant that the treaty, signed December 24, 1814, did not reach Washington until February 13, later even than news of the American victory at New Orleans.[53]

Communication delays were to be anticipated with the slow and unpredictable nature of ocean travel. Improvements to overland travel, however, were possible and sorely needed, and long before the War of 1812 wartime had been a driver of improvements in transportation infrastructure. Some of the most significant roads through the colonies had been built during the Seven Years' War, and the 1790s saw acts passed to build military roads and lighthouses by a government concerned about national

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[52] "Ordinance for the Regulation of the Post Office" (1782), quoted in John, *Spreading the News,* 83; John, *Spreading the News,* 91. John argues that the Post Office, under John McLean's leadership, was a transformative force in transportation, as the establishment of regular stagecoach service helped Americans conquer space more than many have recognized.
[53] Howe, *What Hath God Wrought,* 16; 70.

defense.[54] The difficulty of moving around the country became particularly apparent and problematic to United States leaders after the War of 1812. British blockades along the coast forced American defenses to the interior, exposing the inadequacies of overland transportation. A House committee reflecting on the war wrote, "the embarrassments of the nation during [the] war, from the want of good roads and canals, both in relation to trade and the transportation of cannon and military stores, have been too recently and sensibly felt to be forgotten."[55] In his annual address late in 1815, President Madison warned Congress against leaving the nation "unprepared" for armed conflict and emphasized the need for nationally sponsored roads and canals.[56]

Madison had also never forgotten the political importance of efficient transportation for the republic. The president might have felt he was quoting his own words in *The Federalist* when he described to Congress the "effect of these facilities for intercommunication in bringing and binding more closely together the various parts of our extended confederacy."[57] Madison's comments looked back to questions about the process of governance in a vast republic, but also referred to the actual threat of disunion. Fulton also noted this fear in his letter to Gallatin, suggesting "intrigues [had] been practiced to sever the western from the eastern states."[58] Earlier, President George Washington worried that farmers were having so much success with western lands they

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[54] Harry N. Schieber, "The Transportation Revolution and American Law: Constitutionalism and Public Policy," in *Transportation and the Early Nation,* 4.

[55] Douglas E. Clanin, "Internal Improvements in National Politics, 1816-1830," in *Transportation and the Early Nation,* 32.

[56] James Madison, Seventh Annual Message to Congress, December 5, 1815, Miller Center, The University of Virginia, accessed online at http://millercenter.org/president/madison/speeches/speech-3628.

[57] Madison, Seventh Annual Message.

[58] "Mr. Fulton's Communication," in Gallatin, *Report,* 121.

felt no tie to the interests of the rest of the country.[59] Concerns about regional separation and disunity were present from America's founding, but they grew more urgent as the nation expanded. Encouraging the passage of a proposed 1817 "Bonus Bill" to enact internal improvements along the lines of Gallatin's report, John C. Calhoun argued that ineffective communication between sections weakened the union. It was the government's duty to "bind the Republic together with a perfect system of roads and canals." James Monroe later echoed Calhoun's sentiments: "We shall add much to the convenience and comfort of our fellow-citizens, much to the ornament of the country, and… we shall bind the Union more closely together."[60]

An integrated economy, a better informed citizenry, a more defensible nation, a durable union – the promise of internal improvements was undeniable. This made it all the more surprising when Madison vetoed Calhoun's "Bonus Bill" on his final day in office. Madison justified the veto with a strict interpretation of the Constitution, even while reiterating his support for transportation projects. For the federal government, enacting internal improvements would always prove more difficult than touting them. As historian John Lauritz Larson suggests, "the possibilities of harmony and Union, liberty and improvement, on which the hopes of the nation stood, seemed most secure at the level of abstractions," but consensus typically broke down when proposals were made to address specific material needs. When politicians considered actual projects, concerns about federal authority interfering in state and local affairs, or privileging one state's economic development over another, stalled action. Calhoun could call on Americans to

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[59] Larson, *Internal Improvement,* 14.
[60] John C. Calhoun and James Monroe, quoted in Clanin, "Internal Improvements," 33-35.

"conquer space" to almost universal approval, but federal proposals for transportation improvements would repeatedly founder on constitutional questions and sectional strife.[61]

One major federal project found success: a road connecting the Potomac River to western river systems. Construction on the Cumberland Road, which became known as the National Road, began in Cumberland, Maryland, in 1811, reaching Wheeling, Ohio, in 1818.[62] This was an exception, though, as other major proposals failed in Congress or met more presidential vetoes. Still, numerous internal improvement projects, including most of Gallatin's original proposals, were eventually carried out, even if it was through funding by state legislatures and private corporations rather than the federal government. Turnpikes, larger and better roads built by private corporations and operated on a system of tolls, were among the more common local projects. State legislatures provided companies with charters to build turnpikes and local shareholders were given a stake, suggesting the local interest in improving transportation.[63] During the first few decades of the nineteenth century, turnpikes increasingly connected larger cities and allowed for smoother, if still slow, travel over the mountains. Especially for those emigrants moving west, turnpikes were essential, but contemporary political enthusiasm for turnpikes may have outpaced their actual significance.[64] While they served emigrants making one long-distance journey fairly well, most travelers proved unwilling to pay the tolls, and both travelers and commercial traffic took advantage of "shunpikes" that detoured the traveler around the toll station before rerouting them back to the road. Turnpikes never became

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[61] Larson, *Internal Improvement,* 23. Larson's is the most comprehensive study of the breakdown of federal internal improvements.

[62] For more on the ideas behind the National Road and its construction, see *The National Road,* ed. Karl Raitz (Baltimore: Johns Hopkins University Press, 1996).

[63] Howe, *What Hath God Wrought,* 213.

[64] George Rogers Taylor argues that interest in turnpikes has overshadowed the much more essential network of country roads. Taylor, *Transportation Revolution,* 26-28.

the commercial boon many hoped for and were already in decline by the time the railroad arrived.

By far the most lauded projects of the time were canals, so much so that transportation historians have simply called the twenty years or so after 1815 "the canal era."[65] Though a few smaller canals were already in use, enthusiasm for canal construction took off with the design and success of the Erie Canal, a massive waterway connecting Lake Erie with the Hudson River, completed in 1825. To many observers, the terrain seemed perfectly suited for a canal, and once again the War of 1812, by spurring Northeastern manufacturing to replace trade with Britain, further exposed the necessity of a canal that could carry raw materials to expanding Eastern cities. Unable to achieve federal funding for the project, Governor of New York DeWitt Clinton marshaled state support through the sale of public bonds. Construction on the canal began on the Fourth of July in 1817, suggesting its promoters' ideas about the canal as a symbol of republican progress. When fully opened in 1825, the Erie Canal was praised as an engineering marvel – in its completed form the Canal stretched 364 miles and included eighteen aqueducts passing over river valleys and eighty-three locks that covered 680 feet of elevation change. The effects of the Erie Canal were immediate and significant. Traffic was consistently high, bringing tolls of over one million dollars annually to the state. The canal made shipping western raw goods faster and cheaper than ever before. New York City quickly became the country's largest port. Western farmers earned higher profits and

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[65] See Taylor, *Transportation Revolution.* Others have followed Taylor's periodization.

were less isolated than before, as the canal brought eastern luxury goods like tea, sugar, and oysters, not to mention news and mail.[66]

The success of the Erie Canal launched a frenzy of canal construction across the nation, but none would match the Erie's influence and profitability, and many projects nearly bankrupted sponsoring states. Canals were a substantial improvement, but like overland roads, there were certain geographic and climatic challenges that canals could never overcome. Because travel still relied on animal power, it remained slow – freight boats traveled about two miles per hour, while passenger boats went five miles per hour. Depending on weather and climate conditions, canals could become inoperable due to flooding or low water. Winter typically halted canal traffic too; even the successful Erie Canal was closed for five months every year as operators never found a way to combat freezing.[67]

Better roads, turnpikes, and canals may have had their limitations, but they were improvements nonetheless, and they would remain essential to inland transportation well into the nineteenth century. Calls for internal improvements came from numerous sources. An increasingly dispersed population, particularly isolated settlers in western regions, desired market connections, the latest news from eastern cities, and a faster, more reliable, and safer way of moving themselves about the country. National leaders and those who stood to benefit economically branded transportation projects as the catalysts that would ensure national prosperity and security and increase regional and personal intercourse. With such widespread and far-reaching implications, internal

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[66] This discussion of the Erie Canal is borrowed from Paul Kuenker, "Canal Construction," in *Ideas and Movements that Shaped America* (ABC-CLIO, 2015).
[67] Sheriff, *The Artificial River,* 75.

improvements lent themselves to lofty rhetoric and took on great symbolic significance. The Republican political economy taking shape under Thomas Jefferson and James Madison framed continued territorial expansion as the path to expanded liberty; by "extending the sphere" of republican governance Americans could secure a free and lasting republic built on independent, virtuous citizens.[68] Advancements in transportation therefore appeared uniquely fitted to the American condition, holding the promise of transforming an extended republic of scattered citizens into a fully integrated nation. Rather than a defect challenging republican governance, the country's vast size could be a virtue; mobility would enhance liberty.[69]

For a time, the scope of that vision remained limited. When most Americans spoke about improved transportation and technological advancement, they thought about infrastructure – smooth roads, clear rivers, well-engineered canals – not the means by which people might be conveyed through them. There were exceptions. As early as 1787, John Fitch built a small working steamboat but died before receiving any financial backing. That same year, the Delaware legislature refused a patent to Oliver Evans for a land carriage powered by a steam engine.[70] Latrobe included "a few remarks upon rail roads" in his response to Albert Gallatin. Feeling that the public had "very imperfect conceptions" of railroads' utility, Latrobe described the basic workings of a horse-drawn carriage on rails. Though he admitted that railroads could allow transport of "astonishing loads," Latrobe assured Gallatin they had very limited applicability to the American

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[68] See Drew R. McCoy, *The Elusive Republic: Political Economy in Jeffersonian America* (Chapel Hill: University of North Carolina Press, 1980), especially 185-208.

[69] Bernard Bailyn notes how Revolutionary political thought transformed many perceived American "defects" into virtues by the time of independence. Bailyn, *Ideological Origins,* 160.

[70] Cowan, *American Technology,* 73.

continent.[71] In 1812 John Stevens, who had been instrumental in designing the country's first steamboats, wrote Governor Clinton and the New York legislature again and again, detailing the advantages that could come from building a rail system run by steam locomotives. In response, Stevens received only respectful but skeptical rejections.[72] At the beginning of the nineteenth century most Americans' ideas of what travel was and could be were not much different than those of Sarah Knight and her contemporaries one hundred years before. All shared the desire for improved means of accessing distant places swiftly and safely, but there was little basis for imagining any sudden and dramatic improvement. In their world, speed and power were constrained by the physical limits of wind, gravity, and animal labor. Experiments with steam engines in England and America were starting to suggest, however, that those limits could be overcome, and once they were, the prospects of American mobility would never look the same again.

The possibilities for producing power fundamentally shifted with the harnessing of steam. In the second half of the eighteenth century, James Watt had created a steam engine that proved more efficient than earlier attempts, and for the first time allowed for rotary rather than oscillating motion that could enable smooth motive operation. Watt's engine, intended for industrial use, became the model for America's earliest steamboat engines. The steam engine operated by developing pressure that could drive a piston. Water was heated within a metal boiler by the burning of wood or coal, and the steam produced within the boiler was then channeled into a cylinder that contained the piston.

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[71] "Mr. Latrobe's Communication," in Gallatin, *Report,* 104-107.
[72] John Stevens, "Documents Tending to Prove the Superior Advantages of Rail-Ways and Steam-Carriages over Canal Navigation," (New York: T. and J. Swords, 1812), HL.

The cylinders on early engines were positioned vertically, and steam from the boiler entered the cylinder beneath the piston, driving it upwards. Exhaust steam then moved from the cylinder to a condenser, which used a jet of cold water to condense the steam and create a partial vacuum below the piston, which was then driven back down by atmospheric pressure. Engines working on this principle had to be quite large to achieve sufficient power for desired industrial and later motive purposes.[73]

America's turn toward steam navigation began in the first decade of the nineteenth century with Robert Fulton's successful application of Watt's engine to a steamboat run on the Hudson River in August 1807. Fulton's achievement was the product of more than two decades of American experimentation with steam-powered water transport. John Fitch's boat, built and run in the late 1780s, had used steam-powered paddles to propel the vessel through the water, but Fitch never achieved consistency of operation or the necessary financial backing to develop his prototype further. Another American, James Rumsey, built boats in England around the same time that used steam power to pump water out of the stern in order to power forward movement, but the boats still moved at a very slow rate.[74] John Stevens similarly failed to achieve decent speeds. Then in 1803, Robert Livingston joined with Robert Fulton, and four years later the pair debuted the *North River* steamboat. Fulton's design used what became known as a low pressure steam engine built on Watt's model. The engine powered an external wheel that moved the boat through the water. After the boat's debut, Fulton wrote to the editor of the *American Citizen* to describe his trial. The boat had

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[73] Louis C. Hunter, *Steamboats on the Western Rivers: An Economic and Technological History* (Cambridge: Harvard University Press, 1949), 123-124.
[74] Cowan, *American Technology,* 107.

averaged five miles per hour over a three-hundred mile round trip from New York to Albany, without the assistance of sails; "the whole has," Fulton wrote, "been performed by the power of the steam engine."[75]

Further development of steamboats moved at a moderate pace at first, due in part to Fulton and Livingston's monopoly over the trade. They added other boats on the Hudson, and John Stevens managed to establish a line on the Delaware River in 1809. By 1812 there were ten steamboats in operation, mostly on eastern rivers and bays, but in 1811 Fulton and Livingston ran the *New Orleans* from Pittsburgh to New Orleans. Steamboat travel took off after the War of 1812, particularly in the West, where the long distance and rough waters of rivers made steam power a tremendous advantage. Steamboat development on western rivers also initiated the adoption of the high pressure engine. Unlike the low pressure engines that powered Fulton's boats, high pressure engines were non-condensing engines capable of much higher pressures, typically forty to sixty pounds at first as opposed to under twenty for the low pressure engines. In these engines, designed by Oliver Evans, cylinders were turned horizontal and steam was used directly to drive the piston rather than simply create a vacuum, then steam was exhausted into the air. Not relying on atmospheric pressure allowed cylinders to be much smaller and lighter while creating the potential for very high pressures, which was useful for overcoming strong western currents.[76] Of course, the ability to move vessels against the current was transformative, especially in the West. The steamboat *Enterprise* made the first upriver trip from New Orleans to Louisville in 1815, covering a route that normally took three to four months in just twenty-five days. By the end of the decade there were

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[75] Robert Fulton, letter to the *American Citizen,* in *The Republican Watch-Tower,* August 25, 1807.
[76] Hunter, *Steamboats on the Western Rivers,* 123-126.

close to seventy different boats operating on the western rivers. Steamboat operation began on the Great Lakes with the Canadian *Frontenac* in 1816 and the American *Walk in the Water* in 1818; traffic grew in subsequent decades as canals connected the lakes.[77]

The development of the high pressure engine opened the possibility of steam locomotion on railroads because the engine was more compact. Oliver Evans had begun experiments with steam-powered carriages in the 1780s, and John Stevens experimented and advocated for steam-powered rail travel in the 1810s and 1820s, but neither found financial support from private or public sources. Rail transportation, in which horses pulled carriages over rails, was an established technology in Europe and saw development in the United States by 1826. Then in 1828, the Delaware and Hudson Canal Company purchased a steam locomotive called the *Stourbridge Lion* from a British builder to assist with the movement of canal freight. The *Stourbridge Lion* was the first steam locomotive to operate in America, but it quickly fell out of use when existing railroad track proved unable to support the heavy new engine. The Baltimore and Ohio Railroad began construction on its track in 1828 but used horse-drawn rail carriages initially. American innovators enviously watched experiments in England, where in 1829 several successful runs of steam locomotives had been made reaching speeds of over twenty miles per hour. The Charleston and Hamburg Railroad launched the *Best Friend of Charleston* in late 1830 as the nation's first steam train providing regular service.

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[77] *Archives of Useful Knowledge,* September 1, 1812, 295; Cowan, *American Technology,* 108; Hunter, *Steamboats on the Western Rivers,* 22.

Within a decade, over three thousand miles of track connected cities and towns throughout the eastern United States.[78]

Early advocates for steam transportation framed it as a solution to the challenges posed to transport and travel by the country's vast distances and difficult terrain. In his 1828 published account of English railroad experiments, William Wooddy called "the importance of securing an easy, economical, and expeditious means of communication, between all parts of our widely extended country" the issue most deserving of popular and governmental attention.[79] The Baltimore and Ohio Railroad Company, urging Congress to support rail construction, noted the potential for social and cultural integration – passengers could be conveyed around the country more efficiently and cheaply, and the mail could "with regularity and certainty, be conveyed from the seat of the general Government to the State of Ohio, in thirty-six hours."[80] Near the beginning of the War of 1812, John Stevens identified the military benefit that armies "could be conveyed in twenty-four hours, a greater distance than it would now take them weeks or perhaps months to march."[81] In its first issue, the *American Railroad Journal* quoted an expert on the principle economic advantage of railroads, "the means of transporting *heavy* goods with speed and certainty."[82]

The employment of steam for humanity's ends generally captured the imagination of observers on both sides of the Atlantic, who identified steam power as a force of near

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[78] Cowan, *American Technology,* 112-114; William Wooddy, *Experiments on Railroads, in England, Illustrative of the Safety, Economy and Speed, of Transportation, which this system, as now improved, is capable of affording* (Baltimore: William Wooddy, 1829), HL.
[79] Wooddy, *Experiments on Railroads*, 3.
[80] Memorial of the President and Directors of the Baltimore and Ohio Rail Road Company, to the Senate and House of Representatives of the United States, in Wooddy, *Experiments on Railroads*.
[81] John Stevens, "Documents," 7.
[82] *American Railroad Journal,* 1, 1, January to July, 1832.

limitless capability and a symbol of emerging technological modernity.[83] A piece of music by an F. Lancelott of London, called "The Song of Steam," brims with confidence about the technology. Steam, personified as the singer, boasts of its power: "They found me at last, They invited me forth at length, And I rush'd to my throne with thunder blast, And laugh'd in my iron strength." The voice of steam describes "a wondrous change On the earth and ocean wide," a transformation that extended through several spheres of human society. "I blow the bellows, I forge the steel, In all the ships of trade… I hammer the ore, and turn the wheel, Where my arms of strength are made. I manage the furnace the mill the mind, I carry, I spin, I weave, And all my doings I put into print On every Saturday eve."[84]

In the United States, though, steam power carried special cultural significance primarily because of the capacity of steamboats and trains to overcome space with unprecedented speed. Because America's leaders, businessmen, and travelers so regularly confronted the limits of mobility, the promise of fast, efficient travel held tremendous value. Expectations ran high, and well before the effects of steam transportation could be fully realized, Americans proclaimed its national significance. The groundbreaking ceremony of the Baltimore and Ohio Railroad, held on July 4, 1828, continued an emerging tradition established by earlier ceremonies like the inauguration of the Erie Canal that directly tied technological advancement to the nation's foundation. Charles Carroll, the last remaining signer of the Declaration of Independence in 1828, presided over the ceremony marking the start of America's first railroad, saying "I consider this

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[83] John F. Kasson, *Civilizing the Machine: Technology and Republican Values in America, 1776-1900* (New York: Hill and Wang, 1976), 22-23.
[84] Sheet Music, F. Lancelott, "The Song of Steam," London, Jay T. Last Sheet Music Collection, HL.

among the most important acts of my life, second only to that of signing the Declaration of Independence, if, indeed, second to that." David Nye argues that public ceremonies like this and the Christmas Day 1830 debut of the locomotive *Best Friend* in Charleston fostered republican feelings and united Americans around the idea of the nation's technological success. Technology, it seemed, might lie at the center of a distinctly American culture.[85]

This was especially true with the steamboat, singled out by many as the nation's first great contribution to the world. The steamboat validated American ingenuity and its inventors became national heroes. In 1808 the Hudson, New York, newspaper *The Balance* published a poem by John Menshull celebrating "The North River Steamboat of Clermont." The poet called Fulton "a Genius of this our Nation" and linked his invention with American liberty: "In distant regions oppression is known, Men sigh for their liberty and seek a new home, In our land of improvements Artists are rising…"[86] This kind of praise commonly appeared in American newspapers and periodicals, where writers rejected American dependence on Europe for art and science.[87] In October 1816, New York Historical Society president Gouverneur Morris delivered an address about American successes in which the steamboat took a central role: "Be it ours to boast that the first vessel successfully propelled by steam was launched on the bosom of Hudson's

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[85] David E. Nye, *American Technological Sublime* (Cambridge: MIT Press, 1994), 43; 35; John Kasson explores the emergence of technology as a central facet of modern American culture in *Civilizing the Machine*.
[86] *The Balance,* July 26, 1808.
[87] *Archives of Useful Knowledge,* January 1, 1812.

river." Morris went on to suggest building monuments to Livingston and Fulton and noted that "the invention is spreading fast in the civilized world."[88]

The expanded mobility made possible by steamboats and trains looked to many like the fulfillment of American destiny; through technology, the republic could master space and achieve its distinctive vision of liberty and equality. Ralph Waldo Emerson described the effect in an 1844 lecture: "Not only is distance annihilated… but when, as now, the locomotive and the steamboat, like enormous shuttles, shoot every day across the thousand various threads of national descent and employment, and bind them fast in one web, an hourly assimilation goes forward and there is no danger that local peculiarities and hostilities should be preserved."[89] Modern transportation connected Americans to each other and democratized mobility – as an 1828 travel guide said, "the wonderful facilities for locomotion furnished by modern ingenuity have increased the number of travellers to such a degree, that they now constitute a large portion of the human family. All ages and sexes are to be found on the wing, in perpetual motion from place to place."[90] Travel was becoming a cultural tradition, and more, a fundamental right and expression of Americans' liberty. The French traveler to America Michel Chevalier witnessed this transformation: "to improve the means of communication, then, is to promote a real, positive, and practical liberty; it is to extend to all the members of the human family the power of traversing and turning to account the globe… to reduce the distance not only between different places, but between different classes."[91]

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[88] *Maryland Gazette and Political Intelligencer,* October 10, 1816.
[89] Ralph Waldo Emerson, "The Young American," (1844), quoted in Kasson, *Civilizing the Machine,* 120.
[90] James Kirke Paulding, *The New Mirror for Travelers* (New York: G. & C. Carvill, 1828), 4-5.
[91] Michel Chevalier, quoted in Howe, *What Hath God Wrought,* 242.

Clearly, Americans made a significant cultural investment in steam transportation and the technologies of modern mobility, which promised progress for the nation and its values.[92] On an individual level, Americans celebrated modern transportation for the transformative effect it might have on their daily lives. A cover illustration for an instrumental song called "The Railroad" cleverly suggests the sense of broadened possibility inspired by steam transportation. An Ohio couple waves goodbye to family members as they depart toward a rising sun on an early steam-powered railroad carriage. The woman shouts "Give my love to all my nine cousins and tell Aunt Polly that I'll drink tea with her in Cincinnati tomorrow evening…" Her husband voices his own request, "Don't forget to drop my letter in the post office at Wheeling so it may get to N. Orleans the next day."[93] When Emerson and many others suggested that distance was "annihilated" by the steamboat and the locomotive, they referred to the common perception that far-off destinations were suddenly much closer. Errands of a personal or business nature would no longer entail the painstaking, unpredictable, and often treacherous journeys experienced by earlier Americans, and Americans of the steam age looked back at those earlier days of travel with pride in the nation's progress. An 1825 introduction to Sarah Kemble Knight's narrative noted, "Over that tract of country where she traveled about a fortnight on horseback, under the direction of a hired guide, with frequent risks of life and limb, and sometimes without food or shelter for many miles, we proceed at our ease, without exposure and almost without fatigue, in a day and a half."

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[92] For much more on this cultural investment, see especially David Nye, *American Technological Sublime* and John Kasson, *Civilizing the Machine.*

[93] Sheet Music, "The Railroad, A Characteristic Divertimento for the Piano Forte…" (Maryland, 1828). JLSMC, HL.

An 1865 reprint wrote that railroads had decreased this time to eight hours.[94] Nineteenth-century Americans embraced the qualities of travel that, in hindsight, they had previously lacked: speed, convenience, and safety.[95]

In light of what was to come, that Americans sometimes included safety in the list of steam-powered transportation's celebrated attributes may seem naïve. And yet, promoters of both steamboats and railroads had anticipated the possibility of various dangers. Robert Fulton, understanding the potential for pressurized boilers to burst, quickly moved the engine from the hold of his boats to the deck, lessening the damage in case of explosion.[96] Oliver Evans's designs for high pressure engines specified particulars for safe boiler design.[97] From early on, steamboats were equipped with safety valves that would open and release steam if the pressure in the boiler exceeded a set limit. High pressure engines were understood to be more liable to bursting because of the pressure involved and the fact that engineers could drive pressures higher than intended. To achieve higher pressures, steamboat operators could add highly combustible materials like resin or oil to fuel or weigh down safety valves to prevent excess steam from escaping and lowering pressure. Even though these practices were quickly seen as potentially dangerous, their use to overcome the challenges of western river navigation seemed to outweigh the danger.[98] Concerns existed for trains, too. Responding to John Stevens' vision for steam-powered trains in 1812, Robert Livingston guessed that "the means of stopping these heavy carriages without a great shock, and of preventing them

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[94] Knight, *Private Journal,* 17-18; xii.
[95] "Historical Account of the Application of Steam," *American Medical and Philosophical Register,* January 1, 1812, 263.
[96] Cowan, *American Technology,* 107.
[97] Post, *Technology, Transport, and Travel,* 37.
[98] Hunter, *Steamboats on the Western Rivers,* 131; 165.

from running upon each other, (for there would be many on the road at once) would be very difficult."[99]

Furthermore, the arrival of steam-powered transportation did not come without its hitches. Within a few years steam boilers on boats proved their propensity to burst, and many of the first trials of steam trains produced inauspicious signs of potential dangers. In its debut, the nation's first steam locomotive, the *Stourbridge Lion,* amazed crowds as it shot down a few miles of track, but the locomotive was too heavy for the rails and its force and speed tore up the tracks.[100] A few months after its own momentous debut on the country's first functional steam railroad, the boiler of the locomotive *Best Friend* burst outside Charleston. Newspaper reports blamed the explosion on the carelessness of the fireman, who had supposedly sat on the safety valve to keep steam from escaping.[101] This continued a pattern started in England, where William Huskisson, a prominent citizen and passenger, was killed at the opening of England's first railway, the Manchester and Liverpool.[102]

Danger was clearly present with steam transportation from the start. Early steamboats and trains evidenced a danger rooted in excessive power created by contained steam pressure and massive machines moving at high speeds – a danger with which Americans had little knowledge or experience. To Americans who had traveled long distances in the years before steam power, though, steamboats and trains initially

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[99] Robert Livingston to John Stevens, in Stevens, "Documents," 21.
[100] There may have been more early disasters as well. In a 1998 article, "The Case of the Vanishing Locomotive," John Demos and Robert Thayer also introduced a provocative theory that a locomotive *America* had been brought to the United States and tested *before* the *Stourbridge Lion,* only to have exploded and then disappeared from the historical record. John Demos and Robert Thayer, "The Case of the Vanishing Locomotive," *American Heritage,* 49, 6 (October, 1998), 91-95.
[101] *Charleston Courier,* June 18, 1831.
[102] Charles Francis Adams Jr., *Notes on Railroad Accidents* (New York: G. P. Putnam's Sons, 1879), 6.

appeared to bring unprecedented safety. Discussions of danger in early descriptions of steamboats often focused on the common concerns surrounding sailing. One expert dispelled worry by saying the early *Paragon* steamboat had no danger of sinking from taking on water, and "her length and width, with the small proportion of sail she carries, renders it impossible she can overset." The boat's design ensured that "to ease, elegance, and speed, this vessel unites the most perfect safety."[103] Safety was a clear priority, but boiler explosions were not part of this evaluation. Passengers on the Hudson River steamboat *Hope* wrote to the newspaper the *Northern Whig* in 1811 describing a race with the *North River* boat. They expressed concern and anger over the *North River's* captain pushing the *Hope* against the shore, where it ultimately ran aground, but showed no sense of distress about racing and potential explosion common to later steamboat passengers. Reports on English locomotive trials, republished for American audiences, noted several small explosions but said there was "as little appearance of danger and even of undue speed, as is felt in a stage coach travelling on the highway at the ordinary speed."[104] The earliest observers naturally assessed the dangers of steam transportation in terms of familiar perils.

Danger also meant something different to early long-distance travelers like Sarah Knight and William Richardson than it would to later mass travelers. Travel narratives of eighteenth and early nineteenth-century Americans typically describe long-distance travel as tedious, unpredictable, and often uncomfortable. These travelers, as Will Mackintosh suggests, were producers of their own travel experience – they often relied on

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[103] "Historical Account of the Application of Steam," 266.
[104] Wooddy, *Experiments on Railroads*, 14.

experienced guides but also on their own geographical awareness and itinerary.[105] Their journeys were subject to unforeseen delays, necessary detours, and various threats like poor weather, difficult road and river crossings, and getting lost. Danger and difficulty were expectations of travel before steam power, but its dangers had as much or more to do with the condition and nature of the journey as the mode of transport itself. A safe journey was one with few such external disruptions, so steamboats and trains offering regular, frequent trips and the ease and comfort of travel unencumbered by nature's elements, all in an experience designed and controlled by others, seemed a clear improvement in traveler safety. Increasingly standard travel experiences were marked as modern because they seemed less dangerous.[106] The expectation of security brought by the speed, certainty, and ease of steam travel often overshadowed unfamiliar dangers created by steam power. Americans embraced steam upon its arrival as an added convenience to their lives, as a harbinger of modernity, and as a realization of the nation's republican destiny. Nevertheless the signs of steam's destructive potential appeared from the beginning. In the coming years Americans would encounter a new danger, produced by the power they had harnessed for such progressive ends.

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[105] Mackintosh, "Ticketed Through," 63.
[106] Thompson, *The Suffering Traveler,* 43.

Chapter Two:
Encountering Danger

"It is with pain I inform you of an awful occurrence that took place at 7 o'clock last evening on board the Steam Boat Aetna, Capt. Thomas Robinson." Addressing his family in Philadelphia, the young man thus began a letter telling of his escape from a terrible explosion on board the steamboat *Aetna* as it traveled from Washington, New Jersey, to New York in May 1824. The man wrote that the boat was within sight of New York when "her boilers burst with a noise like thunder," dangerously sending debris toward the area where he had just been standing. The survivor thanked God for giving him command of his wits in the frightful moments that followed, during which he assisted the captain's attempts to save the suffering passengers. Though he claimed he could "scarcely describe" the scene, the writer's detailed account provided his family ample opportunity to imagine the disaster. "One little girl about the age of Mary," he wrote, "entreated me to throw water upon her, her agonies were so great." Later, after the *Aetna* had been pulled ashore and the victims removed, the man returned to the boat to search for missing luggage only to discover "another corpse" hidden under the wreckage.[1]

This man's letter presents one of the early firsthand accounts of a steamboat disaster in America. More than just a record of disaster and survival, the letter evokes Americans' encounters with the dangers of steam-powered transportation in the nineteenth-century United States. The letter writer of course met those dangers firsthand, as many others would over the course of the century. Steam-related disasters literally presented themselves to thousands of others – residents of towns along coasts, rivers, and

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[1] Unascribed letter, *New York Evening Post,* May 18, 1824.

rail lines who, without notice, became the first witnesses to the destruction and often participated in rescue and recovery operations. Elsewhere, in the places that victims and survivors called home, loved ones became suddenly and intimately acquainted with the dangerous potential of steam power. The *Aetna* survivor's letter linked his family to the disaster and even offered them an imagined connection to it when he wrote of the little girl "about the age of Mary." The members of the *Aetna* survivor's family were far from the only readers of his letter, however, as it found its way into several newspapers covering the event. The survivor's account became part of a flurry of reports that brought the details of the *Aetna* disaster to readers around the young nation.

In the early decades of steam transportation, Americans confronted the dangers of steamboats and trains primarily in print. Print, in the form of the news, made the dangers of steam-powered travel a national concern. Clipped from nearby papers and reprinted around the country, descriptions of individual steamboat and rail disasters transformed tragic events of mostly local significance into headlines and news consumed by readers in other cities around the country. Printed news of disasters connected readers to episodes separated from them by time and space and gradually created a public, national conversation about the apparent dangers of steam travel. Whereas early disasters were described as isolated, non-threatening incidents, as accidents increased in frequency and

destruction print coverage framed them as a pattern of danger that was increasingly difficult to deny.[2]

Print therefore became the initial arena in which Americans learned about disasters and debated the causes and solutions of the emerging problem. In the first few decades of steam transportation, Americans encountered the numerous ways steam power begat death and destruction. On steamboats the most frightening and concerning disasters were boiler explosions, but steamboats also collided with each other, wrecked at sea and on rivers, and caught fire. Trains occasionally suffered explosions, but more often their machinery broke down, they derailed from the tracks, or they collided with other trains and obstacles on the track. The problem was widespread and of national consequence, and as the public pushed various solutions, the federal government took aim at combating the threat, especially the disastrous explosions on steamboats. As the national discourse on steam power and danger developed, it both intensified public concerns and affirmed the centrality of steam transportation to modern life. Printed coverage of disasters and legislative responses to them did little to threaten America's embrace of modern steam-powered mobility, but it quickly became impossible to consider the advantages of steam power without also recalling the long list of tragedies that demonstrated its destructive potential.

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[2] This chapter draws upon and connects to arguments made by John Brockmann in *Exploding Steamboats, Senate Debates, and Technical Reports: The Convergence of Technology, Politics and Rhetoric in the Steamboat Bill of 1838* (Amityville: Baywood Publishing Company, 2002). In exploring early responses to steamboat explosions, I look at many of the same sources as Brockmann but ask different questions. Brockmann, for example, mentions the Aetna letter, but with this letter and throughout this chapter I consider these sources and debates in terms of space and connections across it. This helps us understand how a perceived pattern of danger developed that contributed to the impulse for reform that Brockmann and others have detailed. Expanding on Brockmann, my focus also suggests a cultural foundation for the regulations that did eventually pass.

America's earliest steamboats suffered a few minor boiler explosions in their initial years of operation, but the first major steamboat disaster came in the summer of 1816, with an explosion on board the steamboat *Washington* while it plied down the Ohio River. The *Washington* was one of the first steamboats operating on the western river system and was traveling from Wheeling, Virginia, on its maiden voyage. The boat had attracted significant attention; a newspaper based near Wheeling praised the boat as "the finest steam vessel on the western waters." The *Washington* was awe-inspiring; "in August, all her timbers were growing in the woods," declared the local writer, and now they formed a machine that traveled nine miles in the first forty-five minutes of its journey.[3] Admiring observers in Wheeling watched the *Washington* speed away as an example of the progress Americans were making in the realm of steam power. On its second evening out the *Washington* landed at Marietta, Ohio, where Captain Henry Shreve and his crew set about making some adjustments to the boat. The next morning an issue with the rudders sent the boat across the river to the Virginia shore, where the crew dropped an anchor to fix the problem. As they pulled the anchor back aboard, one of the boilers burst, spilling hot water on those nearest to it and throwing several people overboard. Members of the crew and passengers were scalded to death and at least one individual drowned. After others died later from injuries, the final death toll rose to thirteen.[4] In a little over a year, the *Washington* disaster was followed by two other explosions occurring on boats in different parts of the country – first, on the *Enterprise* outside Charleston, South Carolina, and then on the *Constitution,* on the lower

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[3] *Daily National Intelligencer,* June 21, 1816.
[4] *Evening Post,* June 17, 1816.

Mississippi River. Together, these three disasters killed more than thirty people and introduced Americans to the fatal potential of steam power.

As the *Aetna* survivor's letter suggests, before steam disasters entered the national consciousness they made deep impressions on the personal and local levels. Beyond the rare correspondence between victims and families, early reports reveal steam disasters to be profoundly local events. Local and regional papers typically directed their coverage to the most interested parties, providing the latest information about victims. Articles after the burning of the *Lexington* in Long Island Sound in 1840 included full paragraphs of items found for relatives to recover, mentioned bodies that were picked up, and instructed surviving relatives where to go to identify them.[5] Papers in Providence and Boston, upon receipt of the news, published the names of local citizens who had been on board, often including information about their occupations and connections to living residents of their respective cities.[6] Especially on local routes, so many of the dead came from surrounding areas that entire communities felt the effects of disaster. Funerals held in New York after the *Aetna* explosion brought together "thousands" of friends and family who followed the dead through the streets to gravesites.[7] One city paper reported that the gloom over the city was worse than "the lamented case of the Albion," a recent shipwreck that had also taken New York residents.[8]

Other communities found themselves face to face with disaster simply because they were the closest to the scene; residents of port cities and small towns along navigable rivers were usually the people who took charge of rescue, recovery, and even

[5] *Evening Post,* January 18, 1840; January 22, 1840.
[6] *Evening Post,* January 20, 1840.
[7] *The Statesman,* May 18, 1824.
[8] *The Spectator,* May 18, 1824.

burial of victims after disasters. An early report from a paper in St. Francisville, Louisiana, after the *Constitution* exploded in 1817 illustrates how suddenly an unsuspecting community could be thrown into chaos when disaster arrived at its doorstep. The article reveals the immediacy of the circumstances and clearly addresses a local audience: "The news has just reached us, and several of our citizens are going to offer relief to the unfortunate sufferers, who are lodged in a house at Point Coupee, near the plantation of Monsieur Poydras."[9] Similarly, when the *Washington* exploded outside Marietta, Ohio, residents of the town saw and heard the explosion first-hand, and many became directly involved. Some took boats from the shore and rescued those who had been thrown to the water. The local paper reported that every doctor in town and a large number of citizens came to the assistance of the injured passengers and crew.[10] Later, a group of citizens of Marietta met and formed a committee to provide support for the injured and arrange burials for the dead. An initial interment of six victims who had died quickly was "attended by a very numerous concourse of citizens."[11] The *Washington* and its wrecked boiler remained parked offshore for weeks, a physical reminder of the new reality that river towns like Marietta sometimes saw more directly than the rest of the nation.[12]

Even though steamboat tragedies were always first a local matter, the role of these unsuspecting communities reveals the distinctive ways transportation disasters extended beyond the local. A steamboat explosion was a local event but usually for more than one locality – the places that victims had called home, where the disaster was a personally-

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[9] *Daily National Intelligencer,* May 31, 1817.
[10] *Daily National Intelligencer,* June 15, 1816.
[11] *Western American,* June 22, 1816.
[12] *Evening Post,* June 17, 1816.

felt tragedy, and the places where victims had died, where strangers became suddenly and intimately involved. Since steamboats and trains carried travelers to areas far from their homes, their accidents had an inherently wide influence. While other tragedies involving mass death like epidemics or fires confronted cities and towns with the death of their own, transportation disasters brought the death and suffering of travelers, often from somewhere else. This extra-local influence was a byproduct of technological space-time compression. Though various tragedies involving mass death were all newsworthy, steam disasters were a natural subject for regional and national news because the spatial separation between victims and their origins and destinations expanded the geography of interest in details of the disaster. Steamboat and rail accidents occurred in transit, between places – by nature, they necessitated a response and held significance that extended across space.

Print served as the vehicle that brought the details of disaster to affected locales, and from places like Marietta and St. Francisville, word of accidents filtered out often along the very transportation routes that had brought the doomed machines to their doorstep. Local newspaper reports were carried in the mail by steamboats and trains to city papers with wide readerships. Sometimes news of a disaster was first reported by travelers arriving in town from a location closer to the accident; Washington's *Daily National Intelligencer* published a report on the *Constitution* disaster from Norfolk, Virginia, delivering word "from a gentleman" who had arrived in Norfolk via a ship from New Orleans.[13] These transfers of information initiated a process by which steamboat and train disasters ceased to be local and entered broader regional and national consciousness.

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[13] *Daily National Intelligencer,* June 3, 1817.

Outside of the several hundred residents of Marietta, Americans learned of the *Washington* disaster largely through two local reports from Marietta that circulated around the nation in the weeks after the disaster. The first, dated June 6, the day after the explosion, was a short report describing the accident and the expected number of dead.[14] Another, printed the next day, added a few more details given by survivors, speculated on the cause of the explosion, and provided a list of the victims. Carried in the mail around the country, these two reports were picked up and republished by newspapers up and down the eastern seaboard. The June 6 story reached Washington D.C. by the eleventh, Baltimore by the twelfth, and Boston by the twentieth. As late as June 26 the same story was still appearing in smaller towns like Ballston Spa, New York, and Middlebury, Vermont.[15]

Tracking the Marietta reports on the *Washington* explosion highlights the way disasters that often occurred deep in the interior of the continent became national news. The transfer of information was not necessarily smooth; though newspapers could bring word of disasters even to citizens who lived deep inland, there was still a considerable delay in 1816. Slow communication meant that events reached American readers in successive waves moving outward from the story's point of origin. Published information was therefore often weeks old and the timeline of events sometimes became skewed. The disaster reports on the *Washington* explosion arrived late enough that many eastern papers published the Wheeling articles praising the *Washington*'s launch well after its demise was already known to readers in other places. In some cases, papers published the

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[14] *Daily National Intelligencer,* June 11, 1816.
[15] *Daily National Intelligencer,* June 11, 1816; *Baltimore Patriot,* June 12, 1816; *Boston Weekly Messenger,* June 20, 1816; *Independent American,* June 26, 1816; *National Standard,* June 26, 1816.

celebratory article even after becoming aware of the disaster, adding a note such as: "this

is the same boat that met with the accident at Marietta."[16] Besides being a perfect

juxtaposition of steam-powered transportation's dual progressive and dangerous nature,

this publishing choice also reflects the nature of print culture in Early America and the

state of the nation's developing transportation and communication infrastructure, which

could disrupt a clear presentation of the news.[17]

Even if the delivery was imperfect, print culture directly shaped how Americans

confronted early disasters. Boats and trains were not the only revolutionary technologies

powered by steam; in the first half of the century steam presses began churning out

newspapers at record rates to feed the desires of an increasingly literate and informed

population. The transformative effects of an expanding print culture for early American

society have been well documented; print is understood by many scholars of early

America as one of the key elements that enabled Americans to conceive of a united

nation and imagine it into being. Increasing production and spread of newspapers in the

early nineteenth century facilitated greater direct communication between different

sections of the country and consciousness of distant events.[18]

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[16] *Independent Chronicle,* June 27, 1816.

[17] The consequences of such delays were famously demonstrated by the Battle of New Orleans, fought in early 1815 after the Treaty of Ghent had supposedly ended the War of 1812. See Daniel Walker Howe, *What Hath God Wrought: The Transformation of America, 1815-1848* (New York: Oxford University Press, 2007), 8-18.

[18] See, for example, Michael Warner, *The Letters of the Republic: Publication and the Public Sphere in Eighteenth-Century America* (Cambridge: Harvard University Press, 1992) and Richard John, *Spreading the News: The American Postal System from Franklin to Morse* (Cambridge: Harvard University Press, 1998). For alternative arguments that suggest print fostered regional difference and pluralism, see Trish Loughran, *The Republic in Print: Print Culture in the Age of U.S. Nation Building, 1770-1870* (New York: Columbia University Press, 2009); Richard D. Brown, *Knowledge is Power: The Diffusion of Information in Early America, 1770-1865* (New York: Oxford University Press, 1991). On the communications revolution in America see Howe, *What Hath God Wrought.*

As they did for other events, then, newspapers brought Americans in various parts of the country closer to tragedies and victims far from themselves. With descriptions of disaster scenes, lists of the dead, and occasional details about funerals for victims, newspaper reports reenacted for distant American readers the unexpected encounter with danger experienced by those who had seen disaster arrive in their local community, of course at a level far removed from the original experience.[19] Disaster accounts served different purposes depending on their audience – details and lists of victims provided important information for interested locals and gave wider audiences with no connection to those on board a quick sense of the scale of the accident and its tragic results.[20] In a sense, print culture extended the sphere of the affected community to the bounds of the nation; though their respective encounters were different, newspaper reporting allowed American readers to join local communities as observers of steam transportation disasters.

Print culture also connected American readers who accessed shared information and knowledge in published disaster reports. Not only did Americans across the country read of the *Washington* explosion, they typically encountered it the exact same way. Newspapers sometimes made slight changes or paraphrased the articles, but more often than not readers in Washington and New York read the same words as those in Marietta and Wheeling. After each disaster, the initial narrative, the explanation of cause, and the various details provided by witnesses and survivors became enshrined in print as the

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[19] Here I draw on a similar argument made by David Waldstreicher on early American nationalist celebrations, that printed discourse "surrounded these events and gave them extralocal meaning." David Waldstreicher, *In the Midst of Perpetual Fetes: The Making of American Nationalism, 1776-1820* (Chapel Hill: University of North Carolina Press, 1997), 10-12.
[20] Walter Johnson mentions this dual character of disaster reporting in *River of Dark Dreams: Slavery and Empire in the Cotton Kingdom* (Cambridge: Harvard University Press, 2013), 109.

"official" story of the disaster that directed Americans' collective response. Print became the arena and disasters the moments in which Americans together explored steam technology and its potential dangers, and a national discourse about the issue of steam disasters emerged.

The printed responses to America's first steamboat disasters reveal early uncertainty and a lack of established knowledge about steam technology. Each new disaster opened a debate about the causes of the danger and forced a reevaluation of previously held assumptions. Before an apparent pattern of disasters had emerged, early incidents could be easily explained away as isolated and insignificant, and supporters of steam power took to the papers to reassure readers that steamboats were unquestionably safe. Before the *Washington* disaster, the steamboat *Rariton* exploded a boiler in July 1809. A few crew members suffered minor burns in what was, according to one report, only the country's second steamboat boiler explosion. Several days after the accident the New York papers published two different letters, presumably from crew members of the *Rariton,* attempting to explain the explosion, as a "service to the public." The first writer quickly noted that an explosion could only occur from carelessness, as it had here with the engineer James Law neglecting to take the weights off the safety valve to release excess pressure when the boat stopped at Amboy for more passengers. The letter also emphasized that "Mr. Livingston was close to the boiler at the time, and felt no inconvenience," sufficient proof that passengers "cannot possibly receive the smallest injury" on steamboats even when a boiler burst. The writer appended to his letter certified

statements from Law and an injured crew member that their burns were the result of contact with the hot water in the boiler and "not the effect of the steam."[21]

This first response to the minor *Rariton* explosion highlights immediate concerns about the effect disasters and disaster reporting could have on public faith in steam technology. If passengers were truly endangered, "it would inevitably destroy all confidence in this most valuable invention."[22] A second letter published in the *Evening Post* alluded to public questions about steam's safety but echoed the support for steam. The crew member wrote that he was standing right next to the boiler when it burst and the noise was so slight he assumed steam had just been released from the safety valve. He then added that there were about forty passengers on board and though the steam had blown over and enveloped them, "not one felt any further inconvenience than they would have done from a warm drizly rain." This result was enough to convince the writer that injury to passengers was impossible, and he swiftly dispatched with early public fears: "this unfortunate accident will assure all those persons who have had great apprehensions respecting the danger incident to this most eligible mode of travelling, of their safety and must do away with the ridiculous idea that the steam would in case the boiler burst destroy like Gun Powder, the boat passengers and all on board." In this narrative, rather than an example of danger, the *Rariton* accident became evidence of passenger safety, proof that any concern about the new technology was unfounded.[23]

With the *Washington* disaster and the other fatal boiler explosions that followed, the idea that passengers were entirely free from danger fell away. Still, newspaper readers

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[21] *Mercantile Advertiser,* July 15, 1809.
[22] *Mercantile Advertiser,* July 15, 1809.
[23] *Evening Post,* July 15, 1809.

continued to find assurances that dangers were rare and purely coincidental. The clearest

example is in the aftermath of the country's second major steamboat accident, the

explosion of the *Enterprise* outside Charleston, South Carolina. Though the explosion

was small and went unnoticed at first, boiling water and steam spilled out from the boiler

and several passengers were scalded to death.[24] Public opinion was supposedly "much

divided" on the cause of the disaster, but a dominant explanation emerged that blamed

the explosion on a bolt of lightning striking the boiler. The boat had left Sullivan's Island

in a storm, and the pilot claimed to see lightning strike the top of the chimney.[25] Captain

Samuel Howard and the boat's engineers agreed; had the explosion been the result of

steam the lower parts of the boiler and much of the deck would have suffered injury.

Instead, only the very top of the chimney, twelve feet from the boiler, was blown away.[26]

In the rescue efforts, the crew had also discovered the body of one victim with his skin

charred black, an injury that "differed entirely from that of any of his unfortunate

sufferers," seemingly due to a lightning strike rather than scalding from the explosion.[27]

Though no one adequately explained the exact science of how the lightning might have

caused the explosion, the Charleston papers mostly accepted the lightning narrative over

a scientifically more plausible suggestion that the use of salt water for steam creation had

weakened the iron boiler.[28] Unfamiliarity with boiler mechanics made the lightning strike

seem as likely as any explanation, but it was also a useful narrative for those looking to

allay public fears after the accident. Attributing the *Enterprise* tragedy to an act of God

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[24] *Daily National Intelligencer,* September 24, 1816.
[25] *Boston Daily Advertiser,* September 30, 1816.
[26] *Connecticut Herald,* October 1, 1816.
[27] *Boston Daily Advertiser,* September 30, 1816.
[28] This explanation likely had some merit, as the unfiltered and untreated water used by boilers was a definite source of corrosion. See John G. Burke, "Bursting Boilers and the Federal Power," *Technology and Culture,* 7, 1 (Winter, 1966), 5.

rather than technology forced away any suggestion that the event exemplified a pattern of steam-related dangers.

Again, these statements made by newspaper editors and steamboat operators appear partially motivated by an effort to maintain public confidence in the technology despite incidents of danger. One writer feared that the *Enterprise* accident was sure to "prejudice the public mind against the encouragement of this great and important invention."[29] After an explosion on the steamboat *Constitution* killed thirteen, marking the country's third significant steam disaster, one troubled writer pronounced romantically that "since the first savage paddled himself on a log of wood from his native island to an adjacent shore," no advancement had been made comparable to the steamboat, which brought universal feelings of "admiration and pleasure."[30] Another writer framed disasters as a threat to national identity: "A well founded apprehension prevails, that a discovery which every American must feel a pride in believing was perfected in his own country, may be ultimately rendered useless." Clearly, the level of America's cultural investment in steam power made the stakes of public opinion quite high. The editor argued that the precise causes of steamboat accidents must be determined and dealt with so as to "insure [steamboats] from suspicion in the minds even of the most timid."[31]

The discourse on early steamboat disasters also simply indicates a level of denial of steam's potential dangers that did not easily go away even as disasters continued. This derived in part from the fact that the science of steam boilers and their explosions was

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[29] *Boston Daily Advertiser,* September 30, 1816.
[30] *The Camden Gazette,* March 27, 1817.
[31] *Poulson's American Daily Advertiser,* June 26, 1817.

fairly mysterious. Theories like lightning sparking an explosion were easier to understand than the complicated dynamics of steam pressurized within metal boilers. Even when an explosion could not be attributed to something external like lightning, editors often explained disasters as the product of isolated mismanagement or unique problems with the particular boat – causal theories thus had the effect of minimizing links between individual disasters. After the *Washington* explosion, a paper out of Norfolk, Virginia, blamed the boat's iron boiler. The writer assured readers that the local boat, the *Powhatan,* had a safer copper boiler and that "in the present improved state of the machinery," accidents could only result from "deplorable neglect."[32] The writer anticipated a persistent theory articulated further after the *Aetna* explosion that iron boilers were particularly dangerous because, unlike copper, iron was subject to corrosion and thus weakened significantly over time. The writer's faith in copper boilers, based in an over-simplification of boiler explosions, proved tragically misplaced, as nine months later the *Powhatan*'s boilers became the first of many copper boilers to explode.[33]

The *Powhatan* explosion was relatively minor – only the boat's fireman was killed and a few engineers injured – and it was again quickly explained in the press as the result of negligence.[34] There was little doubt in this case that steam pressure had burst the boiler, but newspaper reports still downplayed the danger. One paper stressed that there was nothing in the accounts "that ought to alarm the public mind or induce an impression that it is unsafe to travel in Steam Boats."[35] The explosion had still only affected employees close to the boiler; even if steamboat crews were at risk from a bursting boiler,

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[32] *American Beacon,* June 17, 1816.
[33] Burke, "Bursting Boilers and the Federal Power," 8.
[34] *American Beacon,* March 18, 1817.
[35] *The Columbian,* March 28, 1817.

the paper said, passengers were safe as long as they stayed in the areas of the boat that were designated for them.

The *Powhatan* episode reflects the strength of early resistance to the notion that steam power was dangerous but also that a perceived pattern of danger was beginning to emerge. Print coverage of early disasters consistently identified steam power as safe and disasters as explainable, isolated incidents. New disasters repeatedly proved those explanations and assumptions incorrect, however, and required a gradual acknowledgement that disaster was clearly a potential product of steam navigation. After the *Powhatan* explosion, an unnamed local expert wrote the *Richmond Enquirer* to explain the unique circumstances of the disaster. Still, the observer, seemingly frustrated by growing public fears, added that steamboats were less dangerous than stages, which required constant attention at the reins, and even before steamboats "the upsetting of sloops" killed at least five or six people on the Hudson River each year.[36] Rather than a full denial of steam's dangers, this argument acknowledged them but downplayed their significance. All travel had some danger, the writer implied, and steamboats had less than any other mode. But with continued disasters, the idea that steamboat passengers were safe took increasing effort to maintain.

After a bit of a break in major disasters, the explosion of the *Aetna* just off Manhattan in May 1824 forced a reexamination of disasters in the press. The *Aetna* had been traveling from New Jersey and had reached New York harbor when its central boiler

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[36] *The Richmond Enquirer,* March 28, 1817. There is no real data to prove that stagecoaches and ocean vessels were more dangerous than steamboats, but many scholars believe this to be likely. See Richard N. Langlois et. al., "Bursting Boilers and the Federal Power Redux: The Evolution of Safety on the Western Rivers," Economics Working Papers, University of Connecticut DigitalCommons@UConn, May, 1994, accessed online at
http://digitalcommons.uconn.edu/cgi/viewcontent.cgi?article=1351&context=econ_wpapers.

exploded, quickly killing thirteen of the boat's passengers. Unlike most eastern boats, the *Aetna* operated with a high pressure engine and a wrought iron boiler, and public response pointed to these features as the clear explanation for the explosion. Public opinion turned against wrought iron boilers and proved influential, forcing many New York steamboat owners to concede to public concern and temporarily turn to copper boilers even as industry consensus had gradually built around wrought iron. Though copper boilers were less prone to corrosion they proved to be a weaker material, as many boats with copper boilers exploded over the next decade.[37]

The *Aetna* disaster also particularly raised questions about high pressure engines. High pressure engines were primarily used by western steamboats and had been used on the *Washington* and the *Constitution,* so high pressure became an obvious link between the *Aetna* disaster and the country's disaster record. Almost every published article on the explosion mentioned that the boat's engine was built on "the high pressure principle." Reports attributed not only the *Aetna* disaster but all steamboat dangers to the high pressure engine: "in almost every instance, particularly on the Mississippi, of the bursting of a boiler, it has been found that it was of engines of this description."[38] An early report presented readers with a scientist's description of low pressure engines, which he claimed were unlikely to burst, "the pressure on the out and inside of the boiler being nearly equal." By contrast, high pressure engines, which usually had iron boilers, achieved steam pressures much higher than the pressure of the atmosphere, and were "much more liable to have their boilers burst."[39] Apparent scientific confirmation made clear for

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[37] Burke, "Bursting Boilers and the Federal Power," 8.
[38] *The Statesman,* May 18, 1824.
[39] *The American,* May 17, 1824.

readers the cause of the danger and also isolated that danger only to boats operating with high pressure engines.

In reality, low and high pressure engines were likely about equal in their propensity to explode, as later explosions on low pressure boats bear out. The apparent deadliness of high pressure engines probably derived from two factors. First, high pressure engines did operate at much higher levels of steam, and the evidence suggests that when they did explode, disasters were more catastrophic and resulted in higher losses of life – this certainly contributed to lasting skepticism of high pressure engines. Also, high pressure engines became almost exclusively the engines of western river boats, which operated in turbid water, against stronger currents, and traveled much greater distances than eastern boats, all of which likely contributed to a greater propensity for explosion.[40]

The editorial remarks made in the press suggest mounting public concerns about steam's dangers, but the focus on high pressure engines simultaneously gave voice to those concerns while once again allowing editors to proclaim the safety of the basic technology. "The frequency of accidents in boats with high pressure engines, must naturally tend to lessen the public confidence in steamboats generally," one report concluded before stating that the low pressure boats that traveled the Hudson proved steamboats of good construction "as safe a conveyance as any other."[41] Claiming a duty to the public to "allay unnecessary fears," a number of editors listed which local boats

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[40] Louis C. Hunter, *Steamboats on the Western Rivers* (Cambridge: Harvard University Press, 1949), 290-292.
[41] *The National Advocate,* May 18, 1824.

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used high pressure engines and advised readers to avoid them.[42] Others called on Congress to prohibit the "infernal machines" altogether.[43] Meanwhile, many continued to stress that no boats operating on low pressure had met with serious disaster, but this streak soon ended.

The condemnations of high pressure engines were not shared by all. The writer of a lengthy editorial for the *National Gazette,* signing his name only as "JUSTICE," claimed to present a more rational approach to the disaster now that "violent emotions" had subsided and the public was capable of receiving "truth and reason." The writer noted that there were many citizens who had money in high pressure boats and the public owed it to them to consider all the facts. He then laid out his own explanation: the *Aetna'*s boilers had been cleaned and inspected a few days before the explosion, the boat was going slower than its normal rate – rather than high steam pressure the explosion must have been due to a stoppage in the pipe running to the boiler, likely created by the use of salt water for steam production. More than explaining the disaster, though, "Justice" sought to exonerate high pressure engines from blame. Countering the prominent narrative, he claimed that high pressure engines "are at least as safe, and, as both are now used, probably safer, than the low pressure." He attested that the "high" and "low" pressure labels were understandably misleading; in fact, he said (with some accuracy), low pressure engines actually operated at a much higher ratio of force than high pressure engines when compared to the strength of the boilers used in each.[44]

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[42] *Daily National Intelligencer,* May 22, 1824.
[43] *The Spectator,* May 18, 1824.
[44] *The National Gazette,* June 1, 1824.

Some readers might have noticed that "Justice" was not so much claiming high pressure boats safe as suggesting low pressure boats were also at risk, so the writer went on to defend the overall safety of steam-powered travel. "Are we to conclude from these details that all steam boat navigation is so dangerous that it should be discontinued?" the writer asked. These accidents simply proved that, "as in every thing else," steamboats needed to be approached with proper care and attention. A complete survey of shipwrecks and carriage accidents would likely prove them even more deadly, he said. Unlike most other responders of the time, though, "Justice" acknowledged the inevitable perils of travel: "when a man once gets off his legs for transportation, he will be exposed to more or less danger." Accidents could never be "absolutely prevented," he argued, and in this he anticipated what became a standard defense: that steam-powered transportation posed dangers but the dangers were rare if users took proper care. He concluded: "let every caution be used in constructing the engines of both high and low pressure; and frequent examinations be made of their strength and condition, and steam boats will be found to be the safest, as well as the most easy, cheap, and expeditious means of conveyance."[45]

Competing theories about the causes of the *Aetna* disaster reflect the difficulty of explaining boiler explosions, which mystified both the public and scientists alike. For as much attention as high pressure engines received in the disaster's aftermath, no one could definitively link the explosion to a high level of steam caused by the engine. The writer of the *National Gazette* editorial wrote that those assigning blame to the engines had done

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[45] *The National Gazette,* June 1, 1824.

so "without reflecting that coincidence does not always prove cause and effect."[46] Even as they cited the pattern of high pressure engines exploding, early reports said that it was "impossible" to determine the accident's immediate cause. One of the *Aetna*'s engineers testified that he could not account for the explosion of the boiler.[47] Steam engines were new and complex machines and the country had few if any true experts on their operation, so this kind of uncertainty commonly followed early steam-related disasters. Lack of knowledge about the engines naturally bred the kind of speculation and varying theories voiced in the debates about high and low pressure engines and iron and copper boilers. The press thus presented two simultaneous narratives about steamboat disasters: one said they were not true "accidents" because they could be explained by isolated circumstances or mismanagement – part of an evolving narrative that affirmed the safety of steamboats despite frequent accidents. The other claimed the inability to explain explosions. Unable to locate one clear explanation that could settle the mystery behind steamboat explosions, the understandable efforts to explain disasters and allay fears likely enhanced perceptions of danger, as each new disaster seemed to bring greater uncertainty and reveal more threats plaguing travelers.

The response to the *Aetna* explosion also reflects the fairly rapid evolution of expectations about transportation disasters in the first decades of steamboat operation – an adjustment not only to continued disasters but also to the changing material nature of disasters themselves. Since the first run of the *North River* on the Hudson, engineers had continually drawn more power out of steam engines by increasing the size of engine cylinders and piston shaft lengths. Boats equipped with bigger engines and multiple

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[46] *The National Gazette,* June 1, 1824.
[47] *Evening Post,* May 17, 1824.

boilers achieved increasing power, especially on western high pressure boats.[48] That increase in power was made evident by greater speeds but also by the contrast between the kind of barely-noticed explosion that showered a harmless mist on the *Rariton'*s passengers and the explosion on the *Aetna,* "so violent that almost every thing in the cabins was demolished, the deck torn to pieces, and the vessel rendered a complete wreck."[49] As steamboat technology developed, explosions became more violent and destructive, provoking greater interest in their causes.

In their search to locate the causes of early disasters, newspaper writers continually put forward the belief that it was possible to build a boiler and thus a steamboat that was accident-proof, and that these disasters would be entirely preventable with greater knowledge and regulation. Still, the destruction wrought by the *Aetna* explosion was difficult to explain away. Each new disaster presented a new version of the threat and seemed to weaken public confidence, and so attempts to calm public fears remained even as the implicit reassurance necessarily changed its form from "you will never die" to "you will not die as long as you stay in designated passenger areas" to "just don't ride on these particular boats." Once low pressure boats joined the list of those destroyed by boiler explosions, the only explanation that maintained the idea of steamboats' overall safety was that "only negligence" created disasters, which virtually labeled the events entirely unpredictable.

The pressure for legislative solutions was mounting, and the *Aetna* explosion marks the point at which the pattern of steamboat disasters became a clear national

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[48] Hunter, *Steamboats on the Western Rivers,* 142-143.
[49] *The American,* May 17, 1824.

concern, triggering congressional response. Prompted by a House resolution, the Committee on Commerce published a report and a proposed bill on the issue of steamboat explosions just one week after the *Aetna* disaster.[50] The United States Congress was not the first governmental body to take up the issue of steamboat explosions. In the summer of 1817, after a third major disaster, the City Council of Philadelphia appointed a committee that consulted with scientists and engineers to recommend possible preventative measures. The committee's eventual recommendations included testing boilers at twice the pressure of their intended use and locking up the safety valve to prevent employees from tampering with it to achieve higher pressures. While others were denying steam power's dangers in the press, the committee acknowledged them, saying "accidents must be calculated upon, to happen to engines of all and every construction at one time or another." Still, they argued that high pressure engines ultimately did more damage when they exploded. Rather than enacting any reforms, however, the committee suggested that truly effective reform would need to come from a larger legislative body.[51]

The congressional committee's investigation referred to and built on the Philadelphia City Council's earlier study. The committee's report was the start of several decades of federal concern over the issue of steamboat disasters, and it highlights the forces that would shape the national debate to come: on the one hand, the influence of public alarm and on the other, the various political, cultural, and practical obstacles to significant reform. Reflecting the persistent condemnation of high pressure engines in the

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[50] "Report of the Committee on Commerce, accompanied by a bill for regulating of steam boats…," Committee on Commerce, United States House of Representatives (Washington D.C.: Gales & Seaton, 1824).

[51] "Report of the Committee on Commerce;" Burke, "Bursting Boilers and the Federal Power," 5-6.

press, the resolution charged the committee with evaluating the possibility of a law "that no license to navigate any of the waters of the United States, shall be granted to any boat or vessel, hereafter built, and moved, or propelled by fire or steam, upon the principle of construction, commonly called 'high pressure.'" Despite its conclusion that high pressure engines were more dangerous than low pressure engines, though, the Committee on Commerce advised against a full prohibition of high pressure engines. Instead, it suggested regulatory measures to limit danger, including frequent investigations of boilers and penalties for employees putting extra weight on safety valves. The committee explained that there were situations, notably on streams of difficult current, where a high pressure engine was advantageous.[52]

Though the Committee on Commerce's report alluded to more specific advantages of steam power, it mirrored the defenses of the technology that appeared in newspapers after early disasters. From the start of the report, the committee emphasized the "prosperity and advancement" brought by steam navigation, which it was reluctant to dampen: "To what farther application the agency of steam is capable, and to what extent it may be carried by the science and ingenuity of our mechanicians, cannot be anticipated; and your committee felt averse to fetter, or discourage the ingenuity and skill for which the artists of this country are so distinguished." The committee had even acknowledged the dangers of high pressure engines, but the danger was deemed not significant enough to outweigh the engine's benefits.[53]

The Committee on Commerce's proposed measures did not become law, but the federal government remained interested in studying and debating the issue of boiler

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[52] "Report of the Committee on Commerce."
[53] "Report of the Committee on Commerce."

safety. In early 1825 the Secretary of the Treasury reported the results of an effort to collect information on boiler explosions from various steamboat captains around the country. The captains' diverse responses reveal the difficulty of effectively approaching the problem. The uncertain and different explanations that filled newspaper articles after the early disasters were matched by those of industry insiders. Captain Uriah Jenkins of the *Potomac* called high pressure engines "dangerous in the extreme," while Captain Walter Dubois of the *Georgia* argued that low pressure engines were just as liable to burst as high pressure engines since many carried more steam than their boilers could bear. Others argued that high pressure had little to do with explosions, which were more often caused by engineers weighing down or neglecting safety valves. Several pointed to too low a level of water in the boilers, which they argued made the boiler's metal heat up, weaken, and eventually burst. At the same time, the captains who responded defended the safety of steamboats. One captain pointed to the low overall death numbers and labeled steamboats "the safest mode of conveyance yet used," while another said disasters had been a problem based in lack of knowledge, and would decrease as steamboat captains and engineers learned more about engine operation.[54]

The narrative that steamboats were safe and disasters an isolated or temporary problem put forward in the press and by steamboat operators made federal legislation difficult to justify. Plus, with such disagreement as to the causes of boiler explosion, any legislation would have been challenging to target.[55] Disasters continued to occur across

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[54] "Letter from the Secretary of the Treasury, transmitting information collected by the department, upon the subject of accidents on board of steam boats," United States Department of the Treasury (Washington D. C.: Gales & Seaton, 1825).
[55] Louis Hunter details the reasoning and sources behind the dominant theories on boiler explosions in *Steamboats on the Western Rivers,* 292-295.

the United States, and once again it took a new level of destruction to reignite federal action – this time the 1830 explosion of the *Helen McGregor* outside Memphis, which killed over fifty passengers, a new high. At this point the government shifted from information gathering to a more active investigation in partnership with the scientific community, specifically the Franklin Institute. Founded in Philadelphia in 1824 to study the mechanical arts, the Franklin Institute devoted much of its early scientific study to steamboat boiler explosions. Responding to the *Helen McGregor* and the growing list of other disasters, the Institute formed a committee in 1830 to perform experiments and make recommendations for improvement, specifically noting the lack of congressional action. Secretary of the Treasury Samuel D. Ingham had closely followed the Institute's work, and that same year he allotted government funding for the Institute's experiments.[56]

The scientific community had been nearly as puzzled by boiler explosions as steamboat operators and the public, so the Franklin Institute's multi-year experiments meant a significant expansion of scientific knowledge. The Institute's experiments produced a wealth of information that likely aided in the prevention of many disasters, mostly by debunking some of the popular theories, such as one that said boilers exploded due to their creation of a combustible gas. Among the Franklin Institute's most influential findings, though, was the simple fact that the causes of steamboat explosions were numerous. The response to steamboat disasters from the public and steamboat operators had consistently been to seek a single cause that would explain away steam's dangers. Louis Hunter argues that the focus on any single theory led to a false sense of security

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[56] Burke, "Bursting Boilers and the Federal Power," 9-10.

about other potential causes that probably created more disasters in the early era of steam power. In reality, there were many complex factors that all likely contributed to steamboat explosions. Boiler metal was inconsistent and often of poor quality. Water pumped into the boilers from western rivers especially contained river silt, which wore down boilers. Pumps also supplied water to boilers only when the engine was running, while fires stayed lit and kept heating steam; this required captains to keep the engine running at stops, but many did not, leading to low water in the boilers, excess heating of boiler metal, and high pressures of steam. Steamboat operators weighed down safety valves and added combustibles to fuel to drive up steam pressures in efforts to get through rapids or outpace other boats. Each new disaster had complicated earlier theories, and the Franklin Institute confirmed the emerging truth that any regulation would require a multifaceted approach.[57]

Even so, the Institute's investigators maintained a belief that these various causes were fixable and steamboat accidents ultimately avoidable. Despite the evidence of steam boilers' proclivity for explosion, the fundamental premise of the Franklin Institute's studies was an optimistic one – that dangerous conditions could be limited through scientific investigation and regulatory action. While recognizing that the power to regulate "is to be used with extreme caution" and only when "the remedy certain of success," the Institute sought through scientific study to determine a set of reasonable measures that could shape that legal remedy.[58]

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[57] Hunter, *Steamboats on the Western Waters,* 294; Burke, "Bursting Boilers and the Federal Power, 4-5. John Brockmann provides a detailed accounting of the Franklin Institute's investigations, arguing that the institute inaugurated a new style of technical reporting, in *Exploding Steamboats,* 60-90.
[58] Burke, "Bursting Boilers and the Federal Power," 9.

As John Brockmann has noted, by the early 1830s steamboat disasters were receiving national attention, through a House bill to regulate boiler construction and operation in 1832, and then as part of annual addresses to Congress made by Andrew Jackson in 1833 and Martin Van Buren in 1837.[59] But while attention from the federal government enhanced the notion that steamboat disasters were a national problem, Jackson and others were actually just recognizing a pattern already receiving nation-wide if not yet national attention in print. Government bodies were slow to recognize and then to act on an issue Americans throughout the nation already understood as a significant problem. It took until 1838 for an act regulating steamboats to become law. Scholars have attributed this slowness of federal action to many factors. Until the Franklin Institute offered some clarity, ignorance about the science of steam boilers and explosions was the norm, so the government consistently sought more information before acting. There were also some constitutional concerns about regulating private industry, though these were fairly quickly overcome by reference to the commerce clause of the Constitution that gave Congress the right to regulate commerce among the States, and an 1819 precedent for regulating ocean transport.[60] Steamboat owners resistant to regulation also proved reluctant to provide necessary information about disasters, and both owners and operators maintained a common position that regulation would actually increase danger by removing the personal responsibility among captains and engineers that motivated safe operation.[61] Still, Congressional interest in maintaining public safety overcame this opposition. Another challenge was the inertia of Americans' national investment in steam

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[59] Brockmann, *Exploding Steamboats,* 45.
[60] Hunter, *Steamboats on the Western Rivers,* 526.
[61] "Letter from the Secretary of the Treasury."

power. The concern expressed in the 1824 report that regulation might hinder further technological advancement remained present throughout the debate.[62]

These explanations, however, do not give enough weight to the persistent and powerful belief that despite repeated disasters, public alarm was overblown and steamboats were, by and large, a safe mode of travel. The Committee on Commerce's report after the *Aetna* anticipated the optimism of the Franklin Institute when it referred to "the universal opinion of all persons conversant in such subjects, that Steam Engines, of a certain construction, may be applied to passage boats with the most perfect security."[63] Steamboat captains and engineers responding to disasters or to government inquiries had repeatedly downplayed the dangers of steam. Many inside and outside of the industry suggested that more Americans died on stages and ships than on steamboats. As Congressional committees investigated steamboat disasters, they were repeatedly surprised at the low numbers of steamboat deaths. An 1832 Congressional report found that up to that year fewer than three hundred people had actually died in steamboat explosions.[64] This narrative about the relative safety of steamboats represented a departure from early denials that steamboats were at all dangerous. Continued disasters and the work of the Franklin Institute had made it clear that steam boilers carried a significant potential for danger. Still, the faith in steam remained, and combined with the statistical findings of federal studies likely tempered the apparent need for legislation, especially during years with few significant disasters.

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[62] These and similar factors have been included in explanations of the bill's slow development in Hunter, *Steamboats*; Burke, "Bursting Boilers and the Federal Power," and Brockmann, *Exploding Steamboats.*
[63] "Report of the Committee on Commerce."
[64] Burke, "Bursting Boilers and the Federal Power," 11.

Nevertheless, the government did act, with the passage of a law to regulate steamboats in July 1838. The "Act to provide for the better security of the lives of passengers on board of vessels propelled in whole or in part by steam" approached the problem from several fronts. The act stipulated rules of operation designed to prevent collisions and required boats to carry lifeboats as a safety measure for all types of disaster. It appointed boiler inspectors to check boilers every six months for strength and recommend maximum pressures. The act also made negligence by owners and employees a punishable offense and said explosions would be considered evidence of neglect.[65]

After its passage, the 1838 Steamboat Act received criticism from scientists who argued it was grossly insufficient. Critics lamented the failure of the act to create a licensing system for engineers and clear criteria for inspections, and said the law would generally be a challenge to enforce. The following years would quickly prove the law a virtual failure in its stated goal of securing the lives of passengers, as disasters continued killing Americans at an alarming rate. Scholars have echoed contemporary critics that pointed to the challenges of enforcement and the resistance of the steamboat industry to such regulation as significant factors in the failure of the law. John Brockmann also argues that newspaper reports helped create a flawed law because they distracted focus from systemic technological problems, instead pointing to human incompetence.[66] In fact, while human operators received significant newspaper criticism, disaster reports also gave significant attention to supposed technological problems – they were just often incorrect in their assumptions, as with the blame on copper boilers and high pressure engines. Newspaper reports contributed to the limited success of the law more so in their

[65] Burke, "Bursting Boilers and the Federal Power," 15-16.
[66] Brockmann, *Exploding Steamboats,* 127-128.

continued support for the widespread perception that steamboats were ultimately safe.

Belief in steam's inherent safety certainly shaped the type of legislation that finally

passed in the 1838 act. If the technology was fundamentally safe and its associated

dangers circumstantial rather than systemic, then accidents could be avoided and

casualties lowered with various piecemeal regulations that guaranteed basic oversight of

steamboat maintenance and operation.

Echoing the narrative about safety that developed in the press, the investigations

of the federal government effectively reaffirmed the centrality of steam to modern travel,

especially after the 1838 act established a precedent for government intervention to solve

the industry's minor problems. Complaining that the law encouraged prudent men to

leave the business, steamboat owners wrote in an 1841 memorial to Congress that if the

government had thought steam travel dangerous to the public they would have been

better off banning it entirely.[67] The argument was clearly facetious, in part because such

an option was really never a serious consideration. The nation had a considerable

investment in a future that included steam power and the numbers behind steam disasters

offered no compelling case to completely abandon it. The 1838 law had set an important

precedent for regulating the steamboat industry. Calls to amend the act began within

months of it going into effect, but it would take another wave of massive explosions in

the early 1850s before Congress passed a new, more stringent version adding many of the

provisions that critics saw missing from the first attempt. Government action marked the

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[67] "Memorial of Sundry Proprietors and Managers of American Steam Vessels, on the Impolicy and Injustice of Certain Enactments Contained in the Law Relating to Steamboats" (New York: 1840), 4, American Antiquarian Society. Morton Horwitz notes that court decisions quickly became more favorable to common carriers like steamboat companies, allowing them to contract out of liability for many risks, sometimes including negligence. Morton Horwitz, *The Transformation of American Law, 1780-1860* (Cambridge: Harvard University Press, 1977), 202-204

recognition of a new set of dangers that required national attention, but it was consistently slow to develop and implicitly suggested steamboat dangers were not significant enough to halt the ongoing conquest of American space by modern technology.[68]

As the federal government and the American public were wrestling with the problem of steamboat disasters, a new iteration of steam-related danger had arrived. On November 8, 1833, near Hightstown, New Jersey, an axle broke on a train of the Camden and Amboy line and the train derailed, killing a North Carolina man, J. C. Stediman, who became the first passenger fatality on American railroads. The crash received added attention because one of those who walked away unharmed was former President and then Congressman John Quincy Adams. In his diary entry for the day, Adams described the locomotive and the layout of the passenger cars and then recorded the details that newspapers would soon report to Americans around the country. The train had consisted of two passenger cars followed by a baggage car. When the axle broke on the forward car, where Adams was sitting, the car fell to the tracks and the trailing passenger car ran directly into it and flew off the rail. Stediman was in the rear car, and almost all the other twenty-five passengers in the car sustained some degree of injury.[69]

During the 1830s, other accidents joined the Hightstown disaster, including another derailment in 1836 on the Columbia Railroad in Ohio and an 1837 collision on

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[68] Burke, "Bursting Boilers and the Federal Power," 17-18; Hunter, *Steamboats on the Western Rivers,* 532-534. Federal regulation of steamboats offers a profound demonstration of an active federal government in nineteenth-century America, and a very visible one, contrary to the typical activities of the federal government described in Brian Balogh, *A Government Out of Sight: The Mystery of National Authority in Nineteenth-Century America* (New York: Cambridge University Press, 2009).
[69] The John Quincy Adams Diaries, Vol. 39, entry dated November 8, 1833, Massachusetts Historical Society, accessed online at http://www.masshist.org/jqadiaries/php/.

the Portsmouth and Roanoke, both killing three passengers. Like steamboat accidents, train crashes occurred on the road, killing victims away from their point of origin and pulling in participants who happened to be close by. The home of Mr. Richard Goodwin, for example, housed victims after the collision on the Portsmouth and Roanoke Railroad. The trains collided just one hundred yards from his home, and soon "Mr. Goodwin's house presented the appearance of a hospital."[70] Many Americans encountered rail accidents personally, but, as with steamboat disasters, most confronted this new trend in the newspapers.

Public outcry about early railroad disasters initially lacked the fervor of the response to steamboat explosions. Railroad accidents did not rival steamboat disasters for drama, and disasters, though frequent, killed very few at first. The low death toll was likely due to several factors; low capacity for passengers early on limited the extent of potential casualties and collisions and derailments tended to isolate damage to one section of the train. Boiler explosions were less frequent on trains with smaller engines that did not require the operating pressures of western steamboats, and, if they occurred, only employees were generally close enough to be endangered. Unlike sinking or burning steamboats, wrecked trains did not force passengers to the water, where many drowned. The absence of major early disasters, writes Mark Aldrich, may also have been just pure luck.[71]

It was also the case that two decades into the steamboat era, Americans had already developed a familiarity with steam-related transportation disasters. After the first

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[70] *The Richmond Enquirer,* August 18, 1837.
[71] Mark Aldrich, *Death Rode the Rails: American Railroad Accidents and Safety, 1828-1965* (Baltimore: Johns Hopkins University Press, 2006), 38-40.

deadly rail accidents in the 1830s, newspaper reports displayed no illusions that these modern machines could be entirely accident-proof. "No mode of conveyance is exempt from accident, or can be made so," read an article in the *American Railroad Journal* after the Camden and Amboy crash. The responses to early disasters portray a sense of the inevitability and randomness of rail accidents. The Camden and Amboy crash was "one of those occurrences which scarcely any human foresight or caution can guard against."[72] An article published in the *Commercial Advertiser* about the Columbia crash made virtually the same claim: "this seems to be one of those accidents against which it is difficult to guard."[73] A writer for a local Portsmouth, Virginia, paper seemed unsurprised by the nearby collision between a passenger car and a lumber train that killed three women, simply saying "for the first time since the construction of the Portsmouth and Roanoke Railroad, has it fallen to our lot to record one of those melancholy accidents which… seem destined at times to visit that as every other mode of travelling."[74] An accident was bound to happen here eventually, the writer suggested, and it might only prove the "first time" of several.

The frequent claims that companies had taken all proper precautions and the accidents could not have been foreseen would seem to intensify public fears. Instead, even more than with steamboat disasters, the randomness and unique character of each early rail accident combated notions of any specific, pervasive danger. Addressing the public after the 1833 crash, the executive committee of the Camden and Amboy Railroad Company attributed the disaster to what was likely a "latent defect" in the iron of the axle

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[72] *American Railroad Journal,* November 16, 1833.
[73] *Commercial Advertiser,* October 5, 1836.
[74] *Connecticut Gazette,* August 23, 1837.

which caused undue pressure and the ultimate break. Even with the broken axle, they said, the passenger casualties resulted only from the brakeman being away from his post for a moment and therefore unable to stop the second car – "a combination of circumstances that have never before occurred and in all human probability will never again occur."[75] After the Portsmouth disaster, various reports emphasized that "at no other point on the road could such an accident have occurred."[76] The rest of the road was flat and offered visibility for great distances; this fact made the accident a truly "singular" event.[77]

Thus, even if observers could in no way deny the possibility of fatal accidents, as had been common in steam power's infancy, the impulse to assert the overall safety of an innovation in which Americans already had so much cultural investment remained strong. Even though death tolls were significantly lower than those from steamboat disasters, the early years of railroad travel in the United States suggested that trains presented even more opportunity for disaster than steamboats. The precarious nature of early railroad travel was perhaps no better demonstrated than in the chaotic aftermath of the Columbia and Portsmouth disasters. After the Columbia train derailed in Ohio, killing three and injuring dozens, the locomotive detached its cars and went alone to nearby Lancaster to retrieve medical assistance. While it was away, the undamaged cars were set back on the track, the unharmed passengers reloaded, and the train restarted down the track. As one report described, "they had proceeded but a short distance, when they encountered the returning engine, rounding a curve," meeting in a second crash that left several more

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[75] *American Railroad Journal,* November 16, 1833.
[76] *Richmond Enquirer,* August 18, 1837.
[77] *Richmond Enquirer,* August 25, 1837.

passengers injured.[78] A secondary disaster likewise followed the Portsmouth collision,

when the engine, returning to Suffolk for wood and water through darkness and heavy

rain, ran over and killed James Woodward and Richard Oliver, "two citizens of the

neighborhood, who were walking on the track."[79] The engineer was not even aware he hit

the two walkers until the bodies were found.[80]

These kinds of idiosyncratic accidents resulting in part from a lack of experience

with the technology and its operation initially clouded pervasive issues distinct to the

character of American railroads that would plague the industry for a century to come. The

early railroad tracks laid in the United States were cheaply constructed and prone to

breakage. Even more significant was the fact that, unlike steamboats, multiple lines of

railroad traffic moved along the very same track. Whereas railroads in Britain had been

built with a double track for multiple lines of traffic, most American railroad builders

opted for the cheaper single track, which required good communication and complex

operating procedures to determine right of way. Trains were thus much more likely than

steamboats to suffer collisions, especially before the telegraph and advanced signaling

techniques brought greater coordination among trains on the same track after

midcentury.[81]

Though early disasters represented a dangerous system, the many discrete

possibilities for rail accidents contributed to an emerging narrative that disasters actually

resulted in safer travel. A couple weeks after the Camden and Amboy wreck, the *Evening*

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[78] *Pennsylvania Enquirer,* October 8, 1836.
[79] *Evening Post,* August 17, 1837.
[80] *New Hampshire Gazette,* August 22, 1837.
[81] The numerous hazards of early railroads are thoroughly discussed in Aldrich, *Death Rode the Rails,* Chapter 1.

Post reported that "a very simple contrivance" had been adopted on the rail line that, in the event of a broken axle, would keep the car propped up and stop the train immediately. The *Post* followed the news with this platitude: "It is by experience only, that we are taught to guard against the accidents to which we are liable in life."[82] In another variation on the theme, an engineer wrote that railroads were more prone to accidents "but their security springs from this very cause."[83] The engineer contended that with so many potential accidents, a train's workers had to be constantly alert. This rhetorical gambit, where the train's propensity for accidents actually made it safer than other forms of transportation, was a prominent form of positive spin in early rail disaster responses. That is not to say the claim was false. Railroad accidents often lacked the mystery of early steamboat disasters, as the mechanics of a derailment or collision were more easily explained than a boiler explosion, thus a targeted fix was more feasible. Still, fixes were often localized, made by individual lines rather than system-wide. The necessary improvement was made on the Camden and Amboy line to prevent a recurrence of the 1833 crash, but this did not prevent the nearly identical accident from happening on the Columbia line three years later.

What railroad accidents also offered much more than steamboat accidents was a numbers game – the ratio of casualties to total passengers became the key element in the narrative maintaining railroad safety. Following the Portsmouth collision, a local editor made the argument clearly: "The day's history was one of disaster, yet painful as it was, and not standing alone in the annals of Rail Roads, there is no cause for the growth of any prejudice against that mode of travelling. Of two hundred and fifty persons how large a

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[82] *Evening Post,* November 23, 1833.
[83] *Richmond Enquirer,* August 22, 1837.

proportion escaped uninjured." Even while admitting that accidents were common, the writer minimized their danger by shifting the perspective away from the few dead to the much more numerous who escaped alive. Echoing the responses to early steamboat disasters, the writer then favorably compared the low death toll to other transportation accidents, except now the record of steamboat disasters aided the effort: "compare with this the sweeping disasters, in steam navigation, the dreadful stage accidents, which frequently out of seven or nine persons consign to the grave as many as have now perished." Observers, he concluded, could come to no other logical conclusion than that progress had continued, as railroads were "the most expeditious and secure travelling instrument known to the world."[84]

This point was consistently made to readers after early rail disasters. When the editor of the *Petersburg Intelligencer* wrote of the "alarming" frequency of rail accidents after the Portsmouth disaster, an engineer for another local railroad wrote the paper and defiantly asked, "we all know that railroads are liable to accidents, but are they more so than other conveyances?" The engineer answered no, even though later in the same letter he wrote that "railroads, from their nature, are more liable to accident than other conveyances." The self-contradiction perhaps reflected the engineer's faith that railroad accidents were preventable. The engineer went on to provide numbers and examples that suggested rail accidents were "generally less fatal" than other accidents.[85] The *American Railroad Journal* declared after the Camden and Amboy crash that, in proportion to the number of travelers carried, railroads were "vastly less hazardous than the dullest stages

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[84] *New Hampshire Gazette,* August 22, 1837.
[85] *Richmond Enquirer,* August 22, 1837.

or the surest sailing vessels."[86] The significance of this argument should not be understated; by its logic, as railroad traffic increased, as it would soon dramatically do, deaths on the railroad could become almost negligible – tragic cases, but not signs of a dangerous mode of travel. The early formation of this narrative therefore helped buttress railroads against future critique; continued accidents might bring calls for regulation and reform, but the possibility of a wholesale rejection of the technology, if there ever was one, would be buried by the rapid advance of a demonstrably progressive industry.

Maintaining faith in the safety of railroad travel was certainly easier when no truly major accidents had yet occurred. As late as 1849, William Lloyd Garrison commented on the difference between steamboat and railroad travel, saying "nothing has yet occurred on any of our railroads so fraught with horrors as the remembrance of the fate of the Lexington or the Atlantic or so many a similar disaster on the western rivers."[87] Within the next decade, a wave of railroad accidents produced high fatality numbers – close to fifty dead in an 1853 derailment near Norwalk, Connecticut; sixty-six dead in an 1856 collision outside Philadelphia; forty dead after a bridge collapsed in Indiana in 1859, and more.[88] These accidents were more in line with the threat posed by railroads for most of the century. As steamboats and railroads came to share the traffic load in the United States, the public identified both railroad accidents and steamboat tragedies together as perils of modern transportation.

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[86] *American Railroad Journal,* November 16, 1833.
[87] William Lloyd Garrison, quoted in Arwen Mohun, *Risk: Negotiating Safety in American Society* (Baltimore: Johns Hopkins University Press, 2013), 93.
[88] Mark Aldrich discusses the reasons why this wave of major disasters may have occurred, namely larger, heavier trains and higher passenger loads, in *Death Rode the Rails,* 38-40.

After a few decades of steam navigation in the United States, it was quite clear to Americans that the machines that provided the benefits of speed and power were prone to disaster. Still, there is some merit to claims that overall fatality numbers were relatively low. The federal government's counts on steamboat deaths, done in the 1830s, were rough estimates, as they were based mostly on newspaper reports, but they likely represent a fairly accurate accounting of the human consequences of early steamboat disasters. Louis Hunter estimates an average annual loss of life of 150 for the period between 1807 and 1852, and 340 for the last twenty years of that period.[89] Considering the United States population of the time, roughly twenty-three million in 1850, this was not an insignificant total, but still one that seems out of proportion to the level of political and cultural attention that steamboat disasters received, especially relative to other forms of danger.

Of course, newspapers were not printing front-page stories about every accident-free steamboat and rail journey. As Hunter writes, the statistics may have mattered little to a public aroused by frequent shocking disasters.[90] Even if the public accepted the premise that the threat of steamboat and rail disasters was smaller than it seemed, the continued appearance of disaster stories in the pages of the newspaper cemented the tie between steam travel and danger in the public mind. No matter how much Americans fundamentally embraced steam technology and enjoyed its benefits, this association resurfaced strongly with each steamboat or train disaster. The influence of this disaster and anecdote-driven public response was significant, facilitating the understanding of steam disasters as a frightful national pattern. Newspaper articles contributed to this

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[89] Hunter, *Steamboats on the Western Rivers,* 521.
[90] Hunter, *Steamboats on the Western Rivers,* 522.

perception in the early years with comparisons and references to earlier accidents. The press placed disasters in the context of a string of other accidents readers had often read of before, stitching the events together such that they were not just separate tragedies but evidence of a persistent threat. For example, in the aftermath of a non-fatal accident on the Baltimore Railroad in 1839, readers of the *Daily National Intelligencer* were reminded in a letter to the editors of "the dreadful disaster on the Portsmouth railroad, some year and a half ago, by which so many persons were killed or maimed."[91]

The effects of seemingly continual disaster reporting over the century on public perceptions were substantial. A published narrative on the 1838 disaster of the steamboat *Pulaski* began with the solemn note that "disaster has followed disaster… before the mind could become tranquil from the sad tidings learned from one, another and yet another would follow."[92] A woman in Cabotville, Massachusetts, wrote of the wreck of the *Atlantic* in Long Island Sound in her diary in 1846, quoting a newspaper report: "The N.Y. Observer in speaking of it remarks, 'Not since the loss of the Lexington has it been our painful duty to record so melancholy an accident upon our inland waters.'"[93] Coverage of disasters happening all around the country continued through the century to make accidents unsurprising and apparently unceasing. Henry David Thoreau included steam disasters in a list of monotonous news subjects: "if we read of one man robbed, or murdered, or killed by accident, or one house burned, or one vessel wrecked, or one steamboat blown up… we never need read of another."[94] A *Harper's Weekly* editorial in

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[91] *Daily National Intelligencer,* February 11, 1839.
[92] "A Minute and Circumstantial Narrative of the Loss of the Steam-Packet Pulaski…" (Providence: H. H. Brown, 1838), v. AAS.
[93] Eleanor Huse Ames Diaries, entry dated November 28, 1846, AAS.
[94] Henry David Thoreau, *Walden* (New York: Signet Classics, 2012), 76.

1865 said, "people open their papers every morning with the wonder, 'who has been killed now?' There is a special and necessary department in the papers of railroad slaughters."[95] And near the end of the century, Caroline Barrett White wrote in her diary that "railroad accidents are so numerous, and fatal that I dread seeing a newspaper."[96]

Nor were public figures at the highest level of government immune to the influence of disaster coverage. In May 1830, Representative Charles Anderson Wickliffe of Kentucky submitted a resolution that the Secretary of the Treasury gather information about potential regulations to prevent steamboat boiler explosions.[97] A month before on the floor of Congress Wickliffe specifically mentioned reading an account "of the late dreadful calamity" – an explosion on board the *Helen McGregor* that had garnered national press.[98] President Andrew Jackson's urging of Congress to give "immediate and unremitting attention" to the "distressing" and "constantly increasing" accidents came just weeks after the nation's first fatal train wreck.[99] And after years of study and conversation it was a series of shocking steamboat disasters killing close to three hundred people in 1838 that finally brought the steamboat bill to a vote. Print culture and the shared public memory it created about steam-related disasters influenced the governmental discourse just as it did public opinion, with perceptions often outweighing determinations of relative danger. For the many Americans who never directly witnessed

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[95] *Harper's Weekly,* September 16, 1865.

[96] The Papers of Caroline Barrett White, Volume 21, entry dated September 7, 1893, AAS.

[97] Resolution No. 14, United States House of Representatives, 21st Congress, 1st Session.

[98] Register of Debates in Congress, Comprising the Leading Debates and Incidents of the First Session of the Twenty-First Congress," April 6, 1830, 739.

[99] Andrew Jackson, Fifth Annual Message to Congress, December 3, 1833, Miller Center, The University of Virginia, accessed online at http://millercenter.org/president/jackson/speeches/speech-3640.

or experienced a transportation disaster, newspapers made steamboat and rail accidents recognizable, fear-inducing events.

Moreover, at any time the reality of steam's dangers could shift from an imagined but distant threat to a close, personal experience, as the survival stories of people like John Quincy Adams prove. Adams's account of the Hightstown crash in 1833 is buried within the fifty-one volumes of his meticulously kept diaries. His entries leading up to crash describe fairly mundane travel days as Adams made his way from Quincy to Washington by stage, steamboat, and then on the eighth, rail. The entry dated November 8 opens with Adams's reflections on the harrowing day: "Blessed! Ever Blessed by the name of God! That I am alive, and have escaped unhurt from the most dreadful catastrophe that ever my eyes behold." "The scene of sufferance was excruciating," Adams wrote, with passengers "bleeding, mangled, groaning, writhing in torture and dying" along the road. It was, he said, "a trial of feeling to which I had never before been called."[100]

In the following days as Adams returned to his family and work, his thoughts still frequently returned to the accident. "My mind has been in a state of agitation, unable to think composedly, since the dreadful accident… a danger so extreme – a deliverance so wonderful."[101] Later, Adams recorded the news that two more "fellow travellers" from the accident had died.[102] The accident was of course just one day in an eventful life for John Quincy Adams, but it was a significant one. In a separate diary where Adams wrote just a single line for each day, the exclamatory words "Railway Catastrophe!" shout out

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[100] Adams Diaries, Vol. 39, entry dated November 8, 1833.
[101] Adams Diaries, Vol. 39, entry dated November 9, 1833.
[102] Adams Diaries, Vol. 39, entry dated November 12, 1833.

from the page as a profound interruption of routine.[103] The accident surely threatened to distort Adams's perceptions of rail technology, an effect he may have been alluding to when he wrote of the "superstitious impressions which involuntarily arise" from the disaster.[104]

The diary of Henry Ballard, an Englishman and Mormon convert who survived an explosion on the *Saluda* steamboat on his way to Salt Lake City in 1852, similarly reflects the significance of his encounter with danger. More than seventy-five passengers died in the explosion, including much of Ballard's migrating party. Ballard recorded the event near the beginning of a journal he kept from 1852 to 1904. If his journal is any indication, Henry Ballard was likely not a man of many words. His entries are irregular and infrequent; months, and sometimes years, pass between them. Though the journal spans fifty-two years it is only one volume, and most entries are just a few lines. Major events like Abraham Lincoln's assassination and the death of Brigham Young nearby in 1876 receive the briefest commentary. And yet his entry for April 9, 1852, describes in intricate detail the explosion aboard the *Saluda,* his injuries, and his narrow escape from death. "I was blown about 2 rods and under a bunk with a man with his brains out," Ballard recorded. Blood streamed down his face from a head wound. Later, amidst the wreckage, Ballard wrote that he found "the bread which I had in my hand also my knife each covered with blood, and the tin cup that I had up to my mouth at the time mashed

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[103] Adams Diaries, Vol. 23, November, 1833.
[104] Adams Diaries, Vol. 39, entry dated November 9, 1833.

flat as a dollar." The account forms by far the longest entry in Ballard's journal – the written record of a memory not easily forgotten.[105]

Within the year, on January 6, 1853, President-Elect Franklin Pierce was traveling with his wife and eleven-year-old son from Andover, Massachusetts, to Concord, New Hampshire, on the Boston and Maine Railroad when an axle broke, sending the train crashing into the embankment. Initial rumors said that Pierce had died; in fact he had survived unharmed, but his son Benjamin was among the deceased victims. Two months later, the President began his presidency alluding to his grief: "It is a relief to feel that no heart but my own can know the personal regret and bitter sorrow over which I have been borne to a position so suitable for others rather than desirable for myself."[106]

For most Americans, it was printed stories and lists of dead strangers that familiarized them the dangers of steam travel, but steamboat and train disasters were something anyone could suddenly experience on the most personal level. Print connected readers with distant disasters, illustrated a pattern of danger that could not be ignored, and revealed an underside of steam-powered mobility that potentially threatened all travelers. The record of frequent accidents and numbered dead bound steam power and danger together in the American mind, but so too did personal contact with disaster and the stories it created – the grief of children lost, the narrow escapes from sure death, the heroic rescues. Steam disasters were powerfully emotive events, and the narratives that emerged often overpowered rational evaluations of the problem. As the nineteenth century rolled on and more powerful steamboats blew up and faster trains crashed, the

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[105] Private Journal of Henry Ballard, entries dated April 16, 1865; August 29; 1876; April 9, 1852, Huntington Library.
[106] Franklin Pierce, Inaugural Address, March 4, 1853, Miller Center, The University of Virginia, accessed online at http://millercenter.org/president/pierce/speeches/speech-3553.

numbers of dead increased but so did the drama, and the cultural salience of the steam

disaster grew not just from exposure but from the very nature of the disasters themselves.

Chapter Three:
Visualizing Catastrophe

On a very early November morning in 1847, the steamboat *Phoenix* caught fire on Lake Michigan. The fire quickly consumed the boat, burning passengers and forcing others to their deaths in the frigid lake. Almost all those on board, who numbered about 160 passengers and crew, perished in the accident, with only a small group finding rescue from the water. The story of the *Phoenix* disaster was colorfully retold in J. T. Lloyd's 1856 book, *Lloyd's Steamboat Directory,* with a narrative pulled from newspaper coverage and based primarily on the account of a surviving engineer, "Mr. House." The narrative described how House escaped to the water and then spent hours floating on wreckage before a passing boat, the *Delaware,* picked him up along with other survivors.

Lloyd's narrative included a small engraved image of the burning *Phoenix,* but the written description painted an even more vivid picture: "The hull was a complete bed of fire, which, bursting in flames from the sides, at times streamed far out over the waters, and then curled aloft, till flame meeting flame, the combined fiery current rushed furiously upward till it appeared to be lost in the clouds." Passengers clung to pieces of the flaming boat, "their terror-marked features" lit "by the ghastly glare of the flames." The narrative imagined the flaming steamboat in a manner familiar to many nineteenth-century readers, as a "grand, but dreadful object," a "most awful and sublime spectacle." It was a terrifying and dynamic vision of destruction wrought by one of America's most beloved machines. But just as House was losing hope of survival, another vision

appeared: the lights of an approaching steamboat, the *Delaware*, bringing "deliverance" to those remaining in the water.[1]

The narrative in *Lloyd's Steamboat Directory* was a fairly standard account, the broad outlines similar to the scores of stories of other steamboat disasters that Americans read in newspapers, but its representation of the scenes and images of the disaster captures the varied perceptions that powerful new steam technologies evoked for the American public. Just a few decades into the nineteenth century, steam transportation was ubiquitous, and so were steam disasters. Printed reports of repeated disasters had acquainted readers across the nation with the dangers of the technology they celebrated, and even after attempts were made to limit them, disasters continued. Mr. House's account of his survival figuratively presented the dual nature of steam with which Americans had become familiar: side by side, steamboats appeared as both destroyer and savior. Seen as symbols of modern innovation and national advancement, steamboats and trains became sublime spectacles in nineteenth-century America, but so too did burning boats and wrecked locomotives. The *Phoenix* bathed in flame exemplifies the particular spectacle of modern disaster, one that had significant public appeal. Throughout the century, artists, the press, and publishers produced mass numbers of images and narratives of steam disasters meant for public consumption.

Together, these representations formed the nation's collective image of the phenomenon of steam transportation disasters. Scholars of modernity have often identified vision and spectacle as the most significant sensory experiences of modern life. In his book, *Social Formation and Symbolic Landscape,* Denis Cosgrove argues that

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[1] James T. Lloyd, *Lloyd's Steamboat Directory, and Disasters on the Western Waters...* (Cincinnati: J.T. Lloyd & Co., 1856), 181.

modernity involved a spatial reorganization toward visual consumption of the world, in which humans increasingly became spectators and consumers of their environment.[2] In her study of late nineteenth-century Paris, Vanessa Schwartz argues that popular culture became strongly oriented to mass visual entertainment. Schwartz goes further to contend that visual spectacles became collective experiences of modernity, offering viewers the opportunity to identify with their urban place, Paris, and with their fellow Parisians who shared in those visual experiences.[3] In other words, she says, "modes of representation constituted rather than merely characterized modern urban culture."[4] This chapter argues that the transition to modernity in the early United States was marked by the creation of collective experiences and a shared sense of belonging through predominantly visual representations, and that the sublime spectacles of steam transportation and its associated dangers were central to that creation. Written and visual depictions of disasters, spread throughout the country, constituted shared public experiences of a modern technological nation and became the basis for new social relations and a collective conception of modern travel that stretched across vast distances.

Visualized in words and images, steamboat and rail disasters like the *Phoenix* fire turned into near mythological dramas. The sets of those dramas were visually spectacular scenes of steamboat fires and explosions, train collisions and derailments; their plots were the compelling human moments that played out amidst terrible tragedy and chaos. Artists, writers, and publishers, relying on an expanding American print culture and new

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[2] Denis Cosgrove, *Social Formation and Symbolic Landscape,* revised edition (Madison: University of Wisconsin Press, 1998).
[3] Vanessa R. Schwartz, *Spectacular Realities: Early Mass Culture in Fin-de-Siècle Paris* (Berkeley: University of California Press, 1997).
[4] Schwartz, *Spectacular Realities,* 4.

methods of image production, presented steam disasters to the public with sublime images, artful language, and storytelling technique that magnified the horrific and attractive qualities of catastrophe. Thus, initial newspaper reports with death tolls, victim lists, and attempts to determine cause had introduced American readers to disasters, highlighted a widespread pattern of danger, and brought disasters to national consciousness, but the narrative accounts and vivid representations that grew from those initial reports brought the disasters to life for the American public.

Representations of steam disasters offered the public an imaginative and sometimes emotional connection to the disaster and its various thrilling scenes. Written and visual imagery confronted individuals with distant disasters and also further developed America's cultural consciousness of transportation technology and its associated dangers. Steam disaster narratives and images formed a recognizable, coherent genre that enhanced awareness of a widespread problem and made steamboat and rail accidents mutually intelligible and easily-imagined features of an emerging modern, technological society. At the same time, although words and pictures brought the American public closer to the excitement and fear of disaster, they also reduced Americans' encounter with disaster to a predominantly visual experience separated from any actual threat. The form and delivery of these representations of disaster thus profoundly shaped Americans' relationship to the dangers steam technology presented. Allowed to envision disaster from a position of safety, readers and viewers could absorb the stories and images of destruction as elaborate, exciting dramas and displays of sublime modern technological power rather than simply as reflections of a harsh reality. Steam disasters continued to reveal an extensive problem of public safety, but they also

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became colorful visions of modern life that Americans feverishly consumed. The *Phoenix* disaster was a horrific tragedy, but it was a compelling story. Befitting its name, the *Phoenix* met its demise enveloped in fire, but when the flames subsided, what remained were dramatic representations of its fearful end and a prevailing vision of technological power.

When observers called the *Phoenix* fire and other disasters sublime, they invoked an emotional experience traditionally associated with humans' relationship with nature and the divine. The philosophical concept of the sublime, which framed the term's most common usage in the early United States, was defined most thoroughly by eighteenth-century European thinkers, notably Edmund Burke, who explored the sublime at length in his 1756 work *A Philosophical Enquiry into the Origin of Our Ideas of the Sublime and the Beautiful.*[5] Burke argued that the sublime and the beautiful represented distinct aesthetic qualities – whereas beauty described objects that inspired feelings of pleasure, sublime objects and scenes overwhelmed the senses, provoking both fascination and fear. The Burkean sublime captured the profound experience one might have when faced with an awesome display of God's power and nature's grandeur. Immanuel Kant further developed the idea of the sublime, dividing it into two types: the mathematical sublime, which arose from a contemplation of vast, seemingly limitless nature, like a mountaintop vista, and the dynamic sublime, which described scenes of tremendous and terrifying power, like a storm or natural disaster.[6] Dynamic sublimity derived from a quality of

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[5] Edmund Burke, *A Philosophical Enquiry into the Origin of Our Ideas of the Sublime and Beautiful* (New York: Oxford University Press, 2015).
[6] Immanuel Kant, *Critique of Judgment,* trans. Werner S. Pluhar (Indianapolis: Hackett, 1987).

fearfulness, but crucially a fearfulness accompanied by little actual threat. Kant wrote of

sublime scenes that "we are all the more attracted by their aspect the more fearful they

are, when we are in a state of security," and thus it was possible to "view an object as

fearful without being afraid of it."[7] The pain and pleasure of the sublime came from

contemplating terrifying power and mastering that power through reason.

These particular qualities made the sublime a prominent subject for representation

by eighteenth- and nineteenth-century artists, particularly with the rise of Romanticism in

painting. Artists visually captured the sublime through paintings of vast landscapes and

scenes of humans overwhelmed by nature, forcing viewers "to confront the helplessness

of humanity before uncontrollable natural forces."[8] In the early United States, the concept

of the sublime acquired particular force, as suggested by the ten different editions of

Burke's *A Philosophical Enquiry* published in the United States between 1800 and 1856.[9]

American thinkers like Thomas Jefferson, who wrote of the sublime in *Notes on the State*

of Virginia, located in the American landscape a source of nationalist identity, and artists

followed suit. American painters of the Hudson River School like Thomas Cole and

Frederic Edwin Church took up the project of depicting the sublime landscape as an

American symbol. Their large-scale paintings of the country's most astonishing natural

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[7] Immanuel Kant, quoted in David Nye, *American Technological Sublime* (Cambridge: MIT Press, 1994), 7.

[8] David C. Miller, "The Iconology of Wrecked or Stranded Boats in Mid to Late Nineteenth-Century American Culture," in *American Iconology: New Approaches to Nineteenth-Century Art and Literature,* ed. David C. Miller (New Haven: Yale University Press, 1993)*,* 186.

[9] Robert Doak, "The Natural Sublime and American Nationalism: 1800-1850" *Studies in Popular Culture,* 25, 2 (October 2002), 13.

features, often displayed in ways intended to overwhelm the viewer, presented visions of divine majesty that stunned audiences with their terrifying beauty.[10]

Simultaneously, though, Americans began finding new sources of sublimity in technological marvels like steamboats and trains. Steam power, applied to transportation, inspired such amazement and awe in American viewers that their experiences could easily be characterized by the sublime, and contemporary descriptions often used the term. In January 1812, a New York periodical called *The Casket* published a brief story entitled "Alarm on the Ohio." It described a scene from a few nights before along the banks of the Ohio River, where a sudden "lumbering noise… resembling the roar of a rushing torrent" frightened and confused nearby inhabitants. The story continued: "as the noise approached it became more terrific, some-what similar to the deep peals of distant thunder." Then came "the sublimest part of the scene," when the river seemed on fire and "some phenomenon, which vomited fire and smoke with tremendous noise, darted along the surface of the stream with the rapidity of a meteor." The onlookers feared for their lives and thought the end of the world had arrived, but "were not a little relieved" to find that this was only a steamboat passing down the river.[11]

The story may have been fictitious, or was at least given a colorful flair by the writer, but the emotional response it describes was common to early encounters with steam technology. One author depicted the response through the perspective of children in an 1850s storybook called "The Steamboat." "Many years ago," the story begins, Mr.

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[10] Thomas Jefferson, *Notes on the State of Virginia* (London: Stockdale, 1787). On the Hudson River School and American landscape painting, see Barbara Novak, *Nature and Culture: American Landscape and Painting, 1825-1975* (New York: Oxford University Press, 1980) and Andrew Wilton and Tim Barringer, *American Sublime: Landscape Painting in the United States, 1820-1880* (Princeton: Princeton University Press, 2002).
[11] *The Casket,* January 4, 1812.

Reed and his two granddaughters Harriet and Sallie, none of them having ever seen a

steamboat, went to have a look at one. The children were immediately frightened.

Harriet, the older child, comforted Sallie, "telling her it would not hurt her, though by no

means quite sure of that herself." Harriet and Sallie soon agreed that it was alive, and the

smoke was surely its breath. Harriet explained, "it makes such a noise, I guess, because it

is tired going so fast!" In the end, the children overcome their initial fears when Mr. Reed

explains that the steamer was just a very big boat.[12]

The combined fearfulness and attraction of steamboats was not restricted to first

encounters either.[13] Take this tribute from a steamboat passenger in 1837:

> A Mississippi steamer of 700 tons burthen, with adequate machinery, is one of the
> sublimities of poetry… and if you have a soul that makes you a man, you cannot
> help feeling strongly alive to the mightiness of art in contrast with the mightiness
> of nature. Such a scene, and hundreds such have been realized with an intensity
> that cannot be described, always make me a better man than before.[14]

The passenger's admiration is especially striking considering he was describing the *Ben

Sherrod,* from which he had just barely escaped alive. Few captured the beauty of

steamboats better than Mark Twain; as he writes in the voice of Huckleberry Finn: "Once

or twice a night we would see a steamboat slipping along in the dark, and now and then

she would belch a whole world of sparks up out of her chimbleys, and they would rain

down in the river and look awful pretty."[15]

Trains garnered even more wonder, their power and speed provoking near-

obsessive interest for many observers. A New York man recorded an 1839 encounter in

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[12] *Cousin Grace's Pretty Story Books,* No. 4, "The Steamboat" (Lowell: Joshua Merrill, 1856-57),
American Antiquarian Society.
[13] David Nye writes that "the mark of the truly sublime object" was "that it grows in significance with
repetition." David E. Nye, *American Technological Sublime* (Cambridge: MIT Press, 1994)*,* 15.
[14] S. A. Howland, *Steamboat Disasters and Railroad Accidents in the United States…* (Worcester: Dorr,
Howland & Co., 1840).
[15] Mark Twain, *The Adventures of Huckleberry Finn* (Dover Publications, 1994), 90.

his diary, describing the train's "whizzing and rattling and panting, with its fiery furnace gleaming in front, its chimney vomiting fire smoke above, and its long train of cars rushing along behind like the body and tail of a gigantic dragon – or the d-l himself – and all darting forward at the rate of twenty miles an hour. Whew!"[16] Transcendentalist writers like Henry David Thoreau offer some of the most elegant expressions of the train's sublimity. Though Thoreau disdained the machine's intrusion on his peaceful escape at Walden Pond and mused on the railroad's unfortunate consequences for American society, his words still reflect an overwhelming sensory experience not easily grasped:

> When I meet the engine with its train of cars moving off with planetary motion, – or, rather, like a comet, for the beholder knows not if with that velocity and with that direction it will ever revisit this system… when I hear the iron horse make the hills echo with his snore like thunder, shaking the earth with his feet, and breathing fire and smoke from his nostrils… it seems as if the earth had got a race now worthy to inhabit it.[17]

The same frightful amazement comes through Walt Whitman's ode "To a Locomotive in Winter" when he calls the train "Fierce-throated beauty!" and admires its "piercing, madly whistled laughter" and "echoes, rumbling like an earthquake."[18] The examples abound – for many Americans, steamboats and trains evoked the fear and fascination that were common elements of sublime experiences of nature that Burke and Kant described.

Alongside the American landscape, American technology increasingly evoked a distinctive national culture. A Swedish traveler visiting the United States at midcentury noted that American schoolboys across the country were constantly drawing trains and

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[16] Nye, *American Technological Sublime,* 55.
[17] Henry David Thoreau, *Walden* (New York: Signet Classics, 2012), 95.
[18] Walt Whitman, "To a Locomotive in Winter," in *Leaves of Grass* (Philadelphia: David McKay, 1900), 260.

steamboats on their slates.[19] Naturally, more accomplished American artists found in them subjects of interest as well. At first, American painters integrated steamboats and the railroad fairly seamlessly into their landscapes; in many paintings steamboats and trains are small details of a larger pastoral scene. Quickly, though, the powerful technologies became the focus of many visual studies that took on a sublime character.[20] Though speed was difficult to represent in still images, images of moving boats or trains played on viewers' familiarity with the experience and the idea of speed. Pictures of racing steamboats with smoking chimneys displayed the capability of steam power. Artists also developed a visual convention of orienting the boat or locomotive's motion directly toward the picture plane, which maximized the sublimity of the machine by giving it a monumental presence and revealing it as a potentially threatening force to the viewer.

Americans' various conceptions of these powerful machines embody what some scholars have called "the technological sublime." David Nye characterizes the technological sublime as a "social construction of certain powerful experiences in industrial society," and he identifies the railroad as the first major American example. Like mountain vistas and other examples of the Kantian mathematical sublime, new technologies like bridges and dams astonished Americans with their enormous scale, strength, and engineered beauty. The speed and power demonstrated by transportation innovations gave Americans a technological experience of Kant's dynamic sublime. With steamboats and railroads, the sense of technological sublime was closely related to the

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[19] Frederika Bremer, quoted in Nye, *American Technological Sublime,* 56.
[20] For more on the railroad and American visual culture, see Susan Danly and Leo Marx, eds., *The Railroad in American Art: Representations of Technological Change* (Cambridge: MIT Press, 1988).

rhetoric tying expanded mobility to national progress and republican identity. Like

Thoreau, many Americans saw steam transportation as a marker of a new age, a

perception reflected in the grand celebrations that often launched the opening of a new

railroad line. Nye writes that such celebrations reflect the extent to which Americans'

amazement at technological marvels became a "defining ideal," a sort of national religion

for a modern, pluralistic society. Indeed, technological experiences served as a substitute

for experiences of the divine in nature, inspiring a shared emotional response among

American observers.[21]

The pace and character of technological innovation provided Americans a

consistent source of new sublime experiences. Of course, Nye argues, though the

psychological reaction provoked by technology was characteristically sublime, it was

also distinct from the sublime in nature:

> Because the overwhelming power displayed was human rather than natural, the "dialogue" was now not between man and nature but between man and the man-made. The awe induced by seeing an immense or dynamic technological object became a celebration of the power of human reason… The sense of weakness and humiliation before the superior power of nature was thus redirected, because the power displayed was not that of God or nature but that of particular human beings.[22]

In other words, Nye says, the feelings of the natural sublime could eventually be

overcome by human reason, but the sublime technological object was human reason

itself, given life. While the natural sublime revealed profound human limitations, the

technological sublime suggested limitless human capability. Expressions of the

technological sublime shifted praise and awe away from divine power and toward

humanity.

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[21] Nye, *American Technological Sublime,* xiv-xvi.
[22] Nye, *American Technological Sublime,* 60.

As Nye demonstrates well, this perceptual construct tying technological progress to the possibilities of human reason has been pervasive in American culture since the early nineteenth century. Nevertheless, it insufficiently describes American responses to technology, especially steam transportation. As significant as Americans' experiences with the power and speed of steamboats and trains were their perceptions of the massive disasters that befell these machines.[23] Transportation disasters produced a distinct version of the technological sublime – a profound picture of technological might manifested in destruction rather than mobility, but no less dynamic. Steamboat accidents in particular complicate the concept of the technological sublime because they actually reinserted natural forces into the observer's sublime experience. Steamboats may have been an emblem of human design, but when they exploded, wrecked, or caught fire, they thrust passengers into direct confrontation with powerful natural elements. Together, steamboat and rail disasters both challenged and reaffirmed the notion of limitless human capability. Disasters presented scenes of humans overcome by the combined power of nature and of technology out of human control, and yet because these disasters involved technology observers ultimately associated them with human creation. The dialogue remained between man and man-made, but here the immense power of human design was evidenced not by technological triumph but by technological destruction.

Written descriptions of steamboat and rail disasters often begin with exclamations that the scene was so terrible it "beggared description." The perceived impossibility of

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[23] Though he does not explore the sublimity of disasters themselves, David Nye notes that the potential for danger was an important part of the sublime for these technologies. Nye, *American Technological Sublime,* 55.

capturing the horror in words was the first marker of sublimity, but, of course, writers

always went on to describe these scenes, and their narratives further highlight the

appalling character of technological disaster. The physical consequences of a steamboat

explosion were probably the most striking examples of the power of the steam engine.

When the *Moselle* exploded outside Cincinnati in 1838, one report said, "fragments of the

boilers, and other portions of the boat, were thrown from fifty to two hundred yards on

the shore, some of them having passed entirely over the two rows of buildings on the

street, and a portion of the boilers tearing away the gable end of a stable, situated high up

the steep hill in the rear of the houses, at least one hundred yards from the boats!"[24] A

visitor to the boiler room after the *Helen McGregor* explosion near Memphis similarly

described the wreckage as "ample testimony of the tremendous force of that power which

the ingenuity of man has brought to his aid."[25]

Even more striking was the demonstration of force enacted on human bodies. The

Moselle explosion not only sent wreckage flying but also its victims. "Heads, limbs,

bodies and blood, were seen flying through the air in every direction;" one man was

blown across the river "through the roof of one of the neighboring houses."[26] Observers

described awful scenes of carnage: "we also saw several with their heads and arms

entirely blown off; others with their lower extremities shivered to an apparent jelly."[27] An

1849 explosion aboard the *Louisiana* supposedly shot one passenger through the walls of

another nearby steamer, "making a hole through the panels, which looked like the work

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[24] *Yankee Farmer,* May 12, 1838.
[25] Howland, *Steamboat Disasters*, 134.
[26] *Ohio Statesman,* April 27, 1838.
[27] *Yankee Farmer,* May 12, 1838.

of a cannon ball."[28] Such gruesome and astounding details were central to every

explosion account, illustrating a power nearly beyond human comprehension but

produced by human innovation.

Train accidents, because they often involved passengers getting crushed between

cars or under wheels, produced injuries that were similarly shocking. A survivor's

account of the early Columbia Railroad wreck in 1836 detailed the discovery of a female

victim, "the top of her head cut off, and the brains lay on both sides of the rail; the body,

feet, arms and legs broken to atoms." Nearby lay another victim who had been run over,

the train's wheels cutting off his legs, "grinding the dirt and clothing into the mangled

flesh."[29] In the wreck of a train in New York City, the engineer was "blown to pieces,"

his "intestines scattered over the road."[30] Reports after a horrific accident outside Camp

Hill, Pennsylvania, mentioned stray bones as the only remnants of perished victims.[31]

Each scene of injury and death further revealed the terrifying power of the technology

and the overall horror of the event.

Physical wreckage, whether machinery or bodies, contributed to the spectacular

nature of steamboat and rail accidents; steamboat disasters in particular had aesthetic

qualities, both horrible and attractive, that were often noted by observers. An explosion or

fire did not diminish the sublimity of a steamboat, it enhanced it and made it dynamic,

framing the vessel's impressive visage in flame and astounding destruction. The "solitary

and sable" chimneys of the *Lexington* became even more striking "standing as

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[28] Lloyd, *Lloyd's Steamboat Directory,* 229.
[29] *Commercial Advertiser,* October 5, 1836.
[30] Howland, *Steamboat Disasters,* 255.
[31] *Baltimore Sun*, July 21, 1856.

monuments over some mighty moving catacomb of death."[32] An eye witness to the explosion of a different *Lexington* in 1855 described the water littered with victims and fragments of the boat, "lit up by the blazing timber, which, in that dead hour of the night, cast an unearthly gleam on the hideous spectacle."[33] As the steamboat *St. James* burned on Lake Pontchartrain, "the space between the boats was lighted up by the blazing conflagration to the brightness of midday." Passengers on board the nearby boat *California* saw drowning bodies "caught in the flashes of the moonlight which sparkled on the ripples."[34]

Clearly, then, Americans found in steam disasters qualities that were not entirely horrifying, but appealing and even beautiful. Ralph Waldo Emerson wrote of "the occasional alarm of frightful accident" as one of many features of the railroad that "keep the senses and imagination active."[35] Twain's sense of the aesthetics of steamboats again resurfaces in *A Connecticut Yankee in King Arthur's Court,* but here in reference to disaster. When the character Hank detonates a dynamite bomb that kills enemy knights he explains it to the king as a miracle and remarks in the narration, "Yes it was a neat thing, very neat and pretty to see. It resembled a steamboat explosion on the Mississippi; and during the next fifteen minutes we stood under a steady drizzle of microscopic fragments of knights and hardware and horse-flesh."[36] These aesthetic attributes of steamboat and rail disasters and the stated difficulty of capturing the scenes in words made disasters an

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[32] Howland, *Steamboat Disasters,* 169.
[33] Lloyd, *Lloyd's Steamboat Directory,* 330.
[34] *Daily Picayune,* July 5, 1852.
[35] Ralph Waldo Emerson, quoted in John Kasson, *Civilizing the Machine: Technology and Republican Values in America, 1776-1900* (New York: Hill and Wang, 1976), 121.
[36] Mark Twain, *A Connecticut Yankee in King Arthur's Court* (New York: Penguin Books, 1971), 259.

appealing subject for artistic depiction, and a visual genre of disaster images blossomed alongside the prevalent written descriptions.

In the early nineteenth century, as steam power revolutionized transportation, innovations in printing and printmaking transformed the method and capacity of producing images. The production of images in colonial America was fairly limited, in part because artists lacked the technological means to reproduce images for mass consumption. The colonial elite imported paintings from Europe, and by the second half of the eighteenth century a tradition of American painting was emerging around portraiture and history paintings largely depicting scenes from the Revolutionary era. The Revolution had also prompted the creation of political prints, mostly etchings and woodblock engravings, in which artists carved images into metal or wood blocks to be used to make numerous reproductions. By the end of the eighteenth century, printers developed a type of wood engraving block that could be used alongside movable type, thus allowing for cheap and efficient printing of images with text. This, along with the steam press, dramatically increased the reproduction of illustrations.[37]

Lithography emerged around the turn of the century as another method of image reproduction alongside wood engraving. Rather than carving an image into a block, artists produced lithographs by drawing images onto a limestone block and applying a chemical process that ensured ink only stuck to the drawn image. The block, more durable than woodblocks, could then be used to reproduce an image in significant numbers. Printers initially created lithographs primarily for book illustration and sheet music. In the 1840s lithographers like Nathaniel Currier began using the technique to

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[37] Joshua Brown, *Beyond the Lines: Pictorial Reporting, Everyday Life, and the Crisis of Gilded Age America* (Berkeley: University of California Press, 2002), 9-11.

illustrate current events.[38] Black and white lithographic prints were often hand-colored,

and by 1840 different blocks could be used to create a color lithograph, a process known

as a chromolithography, which enabled inexpensive, mass-reproduction of fine art for

public consumption. Chromolithographs, or "chromos," either original images or art

reproductions, decorated American homes through the end of the nineteenth century.[39]

The concurrence of a rapidly expanding American visual culture and rising public

interest in steamboat and rail disasters was significant for both, as each contributed to the

other. Mass-produced illustrations exhibited steam disasters for the American public, and

the public's fascination with disasters made steamboat and rail accidents a lucrative

subject for the growing image printing industry. Both *Lloyd's Steamboat Directory* and S.

A. Howland's earlier, similar collection of disaster narratives, *Steamboat Disasters and*

Railway Accidents, included engravings, but these were small and lacked detail. The

sublimity of steam disasters found its grandest representation in color lithographs. Once

Nathaniel Currier began producing lithographs of major current events as an early way to

illustrate the news, he recognized the appeal of disaster images and created several prints

of major fires. Then in 1840, three days after the *Lexington* burned in Long Island Sound,

he released an illustration of the catastrophic steamboat fire.[40] Currier's *Lexington* print

was his first major success, selling thousands of copies and making Currier a known

brand. It also demonstrated that there was a market for similar disaster images. Selling

prints out of a retail store and through agents around the country, Currier eventually

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[38] Jay T. Last, *The Color Explosion: Nineteenth-Century American Lithography* (Santa Ana: Hillcrest Press, 2005)*,* 15-17; 66.
[39] The popularity and prevalence of chromolithographs is explored in Peter C. Marzio, *The Democratic Art - Pictures for a 19th-Century America: Chromolithography, 1840-1900* (Boston: David R. Godine, 1979).
[40] Print, "Awful Conflagration of the Steam Boat Lexington" (New York: Nathaniel Currier Lithography, 1840), AAS.

joined with James Merritt Ives and their firm, along with many others, continued making popular prints of steamboat and rail disasters.[41]

Currier's *Lexington* lithograph is a stunning example of the sublimity of a steamboat disaster. Lines from the vivid descriptions in newspapers found their visual echoes in Currier's scene. A cloudy but moonlit sky drawn with a romantic flair backs the scene, but the rest of the frame is filled by the burning *Lexington* and the water, dotted with passengers dead and alive. The *Lexington,* its full starboard side in view, sits at the center, still whole, but engulfed in flames that reach to the top of the frame. Aboard the boat, passengers leap into the water, while in the foreground those already in the water seek refuge on cotton bales and pieces of wreckage. Like most lithographs of the day, it was printed in black and white and typically hand-colored – meaning the coloring is different from print to print. Surviving copies are bathed in rich color, predominantly the bright yellows and oranges of the enormous fire. The light from the fire stands out in front of the dark night background and casts a glow over the figures struggling in the water. Other prints and illustrations of the burning *Lexington* joined Currier's lithograph. Many included the same details or were virtual copies, though typically less finely drawn.[42] The number of prints executed and the Currier print's commercial success reveals both the national attention given to the *Lexington* disaster and the appeal of the scene itself as an artistic memento of the event. This was a colossal tragedy and Currier's representation was a horrific display of death, yet it clearly had visual appeal.

Though few prints match the Currier *Lexington* for beauty, many lithographs of other steamboat disasters have a similar aesthetic. A colorful 1856 lithograph of the

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[41] Last, *The Color Explosion,* 66.
[42] Examples of several near-copies of the Currier print are housed at the American Antiquarian Society.

burning steamboat *New Jersey,* published by A. Pharazin of Philadelphia, shows the boat

at center, its smokestack still prominent but surrounded by thick black smoke coming

from the fire. In this image, the boat is shown much closer than in the *Lexington* image,

so the anguished figures leaping into the water to escape the flames are even more

intelligible. The expressive faces in the water reveal the extraordinary horror of the

event.[43]

Train accidents produced different sublime scenes, predominantly of twisted

wreckage and gruesome bodily remains. An 1855 lithograph by the Sinclairs firm shows

in many colors the recent accident on the Camden and Amboy Railroad near Burlington,

New Jersey, a wreck that killed twenty-one and injured dozens more. The train cars are

all separated from one another, and a few are tipped on their sides and significantly bent.

Pieces of track lie scattered all over the image. The print depicts the large crowd that

gathered after the accident to watch and aid rescue efforts. Bodies are shown being

carried away. The artist refrained from detailing any grotesque human injury, but a dead

horse lies prominently on the left side of the image, its insides spilling onto the hill. Like

the steamboat pictures, it is a striking image of powerful machines and tremendous

destruction, represented for public consumption.[44]

Beyond lithography, the flourishing of illustrated newspapers brought large-scale,

detailed disaster engravings to the public eye. These were black and white images, but

quite intricate and often more dramatic even than lithographic prints. Though news of

Lincoln's assassination overshadowed the *Sultana* disaster, *Harper's Weekly* included

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[43] Print, "Terrible Conflagration and Destruction of the Steam-Boat 'New Jersey'" (A. Pharazin, 1856), AAS.
[44] Print, "Accident on the Camden and Amboy Railroad" (Sinclairs Lithography, 1855), AAS.

one illustration showing the once stately riverboat overcome by fire. No representation could do justice to the shocking story, in which nearly two thousand released Union prisoners packed onto an overcrowded boat heading north died after the boat's boilers exploded. Still, the *Harper's* illustration evokes the scale of the disaster by the sheer number of tiny figures packed onto the boats decks and in the water.[45] An illustration of the exploding *Princess,* published in the March 19, 1859, issue of *Frank Leslie's Illustrated Newspaper,* is representative of many scenes of exploding steamboats. The image shows the very moment of explosion, resulting in a giant cloud of smoke. The power is evident by the detail of the boat's smokestacks blown into the air along with bodies and other wreckage, visually verifying the scarcely believable written accounts of steamboat explosions.[46]

Two railroad illustrations exemplify the ways artists conveyed the sublimity of rail disasters. *Leslie's* primary illustration of the 1856 Camp Hill disaster imagines the scene moments after the trains collided.[47] The result is a pileup of rail cars so misshapen they are hardly discernible. Near the center of the image, the sun glints off the metal in two places, drawing the viewer's eye to a locomotive turned on end, its pilot (or cow-catcher) on the front is visibly mangled. Just above center the stack of the other locomotive, separated from its engine, shoots upward. Close by, three bodies fly into the air. Debris from the wreck scatters toward the edges of the frame. This is a representation intended to evoke extraordinary power, capable of ripping apart these marvels of engineering. A *Harper's* illustration of an accident on the Erie Railroad in 1868 takes a

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[45] *Harper's Weekly,* May 20, 1865.
[46] *Frank Leslie's Illustrated Newspaper,* March 19, 1859.
[47] *Frank Leslie's Illustrated Newspaper,* August 2, 1856.

distinct but no less effective approach.[48] The image shows evidence of the train's derailment; high atop a steep embankment other train cars are visible on the track, but below all that remains are pieces of debris that figures wade through as they search for victims. Here, the artist capitalizes on the nighttime recovery scene to maximize visual drama. The scene is bathed in darkness, and the only source of light is a burning fire at the bottom of the embankment that silhouettes the figures working their way through the wreckage. In both images, the artists' choices frame an awesome spectacle created by technological might.

The particular sublimity of transportation disasters found its fullest development in this kind of visual imagery, which brought to life the most frightening and the most alluring elements of the events. The inclination toward illustration was natural both because visual imagery was becoming so ubiquitous in nineteenth-century America and because the character of the disasters lent itself to visual depiction. In fact, even the written language used in disaster narratives had a strong visual orientation. Textual descriptions of steamboat and rail disasters, nearly without fail, speak of "scenes" and "spectacles," which they work to imagine for the reader in words. The *National Advocate* wrote that the *Aetna* explosion in 1824 presented "a scene of death and terror… which may be imagined, but cannot be described."[49] "The scene on the burning vessel is represented as one which would have agonized any spectator," an observer wrote of the *G.P. Griffith* fire in 1850. The sight of steamboats burning from the St. Louis shore was

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[48] *Harper's Weekly,* May 2, 1868.
[49] *National Advocate,* May 18, 1824.

"awful but magnificent; a spectacle to which no pencil could do justice, but not the less dreadful and horrifying to every spectator."[50]

Written accounts therefore encouraged readers to imagine the scene as spectators, and they typically privileged the eye-witness spectator's view, often over that of the survivors, as the most accurate representation of the scene. The detailed description of the powerful *Moselle* explosion came from "a gentleman, who was sitting on his horse on the shore."[51] The *Daily Picayune* recounted the *St. James* disaster from the perspective of the nearby *California,* where spectators "could see the terrified men and women on board of the St. James hurrying to and fro, wringing their hands."[52] And again, from a writer after the *Glencoe* explosion outside St. Louis: "the spectators on the shore beheld men, women and children running, with phrensied gestures, from one part of the burning steamer to another."[53] Victims who escaped disaster often provided heroic or tragic stories, but the view from the shore or from some distance was all-encompassing, providing a true picture of the captivating spectacle. Though illustrations occasionally took viewers inside a sinking steamer or a wrecked train, most visual portrayals took the spectator's view. Many images included non-participant spectators in the foreground of the scene, placing the viewer of the illustration among them in the eye-witness position, ready to take in the full scene.

The technological sublime of steam disasters was thus a sublime that was characteristically visual, and crucially so, for in visual representations viewers came face to face with a vivid scene of indescribable horror but maintained the safety of a

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[50] Lloyd, *Lloyd's Steamboat Directory*, 261; 276.
[51] *Ohio Statesman,* April 27, 1838.
[52] *Daily Picayune,* July 5, 1852.
[53] Lloyd, *Lloyd's Steamboat Directory,* 288.

spectator's distance. In Kantian terms, disaster images could be frightful without making viewers afraid. Though written accounts primarily conveyed sights, they often described a multi-sensory experience – the heat of the flames, the frigidness of the water where victims struggled for life, the screams of passengers pinned beneath train wreckage. While the visual scene could be reproduced, the other sensory experiences of disaster could not, so in illustrations only the sights remained. The terror was palpable, but not overpowering; the danger was evident, but not actually threatening. Representations made the viewer into what Denis Cosgrove suggests is the characteristically modern individual consuming the scene as an external observer.[54] Even as they shocked and horrified Americans, then, visualizations of steam disasters distanced viewers from the actual experience of the dangers of steam travel, allowing them to consume the images in a voyeuristic fashion. Aware of danger but not immediately threatened by it, Americans could delight in the absorbing images of disaster filling their newspapers and hung on their walls.

Of course, visual imagery of disasters was not wholly new but rather embedded within an established tradition, as were descriptions of disasters as sublime. Natural disasters had long been considered sublime and earned visual attention.[55] Even more significant, though, was the pattern of American responses to shipwrecks. Representations of steamboat disasters often drew upon the tradition of shipwrecks as the events most akin to a steamboat accident, but the differences in portrayals of shipwreck

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[54] Cosgrove describes this visual orientation in terms of "landscape," and argues that modern landscape viewing is "above all an appropriation of the visual scene by sense and intellect rather than an active engagement with it in the processes of organic and productive life." Cosgrove, *Social Formation,* 140.
[55] Kant, *Critique of Judgment.*

and steamboat accidents are instructive about the specific and novel character of technological disasters.

As a centuries-old form of disaster, shipwrecks carried a set of iconographical associations understood by audiences of the period's art and literature. Shipwrecks were a common literary subject marking suffering and trial.[56] As David Miller writes, well into the nineteenth century, politicians, religious leaders, and other cultural figures evoked shipwrecks to describe the crisis of human civilization pitted against external forces.[57] Shipwrecks were definitive examples of the natural sublime, as they demonstrated the catastrophic power of natural hazards. This traditional response is epitomized in the shipwreck narratives S. A. Howland appended to his book on steamboat disasters and railroad accidents. Howland's book presented one shipwreck story after another as examples of the awesome power of nature and the impossibility of human resistance to it. A reprinted sermon reflecting on the 1839 wreck of the *Gloucester* resounded with the language of the natural sublime, describing the event as awe-inspiring, "the power of God displayed in the extraordinarily excited action of the elements." The scene evoked "human impotency" in the face of the "terrible majesty and strength" of the deadly storm. These descriptions mirrored those of the *Mexico* shipwreck two years earlier – a "dreadful, frightful scene of horror." One observer reimagined from the recovered bodies a haunting image of the victims' end, passengers frozen to death as they clung to the rigging for life, or a little girl who "had raised herself on tiptoe, and thus was frozen, just in that position." "How powerless and feeble are all human efforts," the writer concluded,

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[56] Carl Thompson, *The Suffering Traveler and the Romantic Imagination* (New York: Oxford University Press, 2007), 62.
[57] Miller, "Iconology," 187-188.

"when contending against the storms and tempests, which sweep with resistless violence over the face of the deep."[58]

An illustration of the ship *Byron* meeting an iceberg depicts with even more clarity the natural sublimity shipwrecks so often evoked. The accompanying written narrative tells how the ship actually narrowly avoided the iceberg, but one would not know it from the image. The iceberg takes on a monstrous form of a giant gaping mouth with sharp icy teeth bared, the whole form curling up and over the dwarfed *Byron* as it threatens to swallow the ship entirely. In this vision the natural is massive and violent, a force which the diminutive ship, humanity's representative in the encounter, appears to have no chance of overcoming.[59]

Howland clearly saw a link between shipwrecks and steam-related disasters, as he chose to include them in the same book, but his engravings of steamboat disasters, like other steamboat disaster images generally, have a visual character different from the *Byron* image. Artists commonly made doomed ships small, instead focusing most of the visual weight on the waves or natural obstacles overpowering the vessel. In steamboat images like Currier's *Lexington* lithograph, however, the boat dominates the scene, despite its destruction. When artists imagined the moment of a steamboat explosion, they revealed technological power, not the force of nature.

That being said, images of steamboat disasters do not represent a clean break from the tradition of the natural sublime as do some other responses to technology. As transatlantic travel shifted toward steam power, many oceangoing steamers wrecked at sea, and artistic representations of these events bear closer resemblance to shipwreck

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[58] Howland, *Steamboat Disasters,* 347; 273-275.
[59] Howland, *Steamboat Disasters,* 293.

images than those of river and coastal steamboat disasters. A *Leslie's* illustration of the wreck of the *Central America* in 1857 shows a sinking ship over halfway under the water as towering waves from all directions are about to cascade over it.[60] With the high horizon line of vast ocean, the viewer can easily imagine the ship becoming completely engulfed and the ocean returning to its restful state with no sign of disturbance. In a similar 1854 lithograph image by Nathaniel Currier, the wrecked steam ship *San Francisco* is shown as a small, powerless vessel in a turbulent ocean.[61] Even though these images depict steam-powered ships, the ships are entirely devoid of technological strength – in fact, in the Currier image, it is three sailing vessels that come to the *San Francisco*'s rescue.

Even in images like Currier's *Lexington,* the awesome power revealed is not entirely technological. The steamboat is at the center of the image and the drama, but this is an image featuring a pair of fearsome natural elements – the raging fire and the icy water. Of course, the image's context reinforced the fact that here, at least, the fire was a product of technology. Steamboat disasters reflect a gradual shift from the natural to technological sublime as a dominant emotional force in American culture. Steamboat disasters displayed natural and technological power and demonstrated both human limitation and the terrifying capacity of human reason.[62] In depictions of railroad accidents like the *Leslie's* and *Harper's* images of the Camp Hill and Erie disasters, respectively, the transition appears more complete. The forces of danger to fear in these

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[60] *Frank Leslie's Illustrated Weekly,* October 3, 1857.
[61] Print, "The Wreck of the Steam Ship 'San Francisco'" (New York: Nathaniel Currier Lithography, 1854), AAS.
[62] This peculiar quality made it possible in many cases to interpret steamboat disasters as the consequence of either divine providence or human pride in technology, as discussed further in Chapter Four.

dramatic incidents are not natural or divine but rather human-created: speed and mechanical force. In steamboat and rail disasters, Americans experienced a vision of modernity distinct from a sense of technological sublime that exclusively celebrated human ingenuity. This vision exhibited destructive capacities of steam power just as awesome as the annihilation of space and time.

Sublime scenes of burning steamboats, exploded debris, and twisted train wreckage brought the fearful and fascinating nature of steamboat and rail disasters to the American public, but it was the stories of human drama that animated those scenes, making them even more compelling. After initial reports provided the basic narrative and statistics of a disaster, subsequent articles sometimes added colorful details of heroic and tragic episodes. Headlines often labeled these "thrilling incidents" or "affecting incidents." These common labels suggest that writers understood the emotional responses such stories could provoke and tried to target them. The genre of disaster narratives grew out of this recognition of their general appeal and emotional power. That appeal was not unique to transportation disasters; especially with the rise of the sensationalist penny press, nineteenth-century Americans devoured thrilling and affecting narratives of all sorts of dramatic crimes and accidents.[63] Among these, however, steamboat and rail disasters were often paramount. Newspapers regularly commented on the public's desire for details; several days after the Camp Hill railroad disaster the *Trenton State Gazette*

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[63] For an interesting analysis on written and visual portrayals of crime, see Michael Ayers Trotti, *The Body in the Reservoir: Murder and Sensationalism in the South* (Chapel Hill: University of North Carolina Press, 2008). On sensationalism in the press generally, see John D. Stevens, *Sensationalism in the New York Press* (New York: Columbia University Press, 1991) and Chapter 6, "The Sensational Press and the Rise of Subversive Literature" in David S. Reynolds, *Beneath the American Renaissance: The Subversive Imagination in the Age of Emerson and Melville* (New York: Oxford University Press, 2011).

reported that "the most eager interest is still shown in all that relates to the awful

tragedy."[64] That apparent interest led to follow-up stories and then to published

pamphlets devoted to every aspect of a single disaster, with titles like *A Minute and

Circumstantial Narrative of the Loss of the Steam-Packet Pulaski,* "with many affecting

incidents connected with that disastrous event," and *A Full and Particular Account of All

the Circumstances Attending the Loss of the Steamboat Lexington*.[65] Finally, some

publishers capitalized on public interest with book-length collections of disaster stories.

S. A. Howland of Worcester, Massachusetts, compiled several hundred pages of

steamboat and railroad accident narratives, also adding a few "recent shipwrecks, fires at

sea, thrilling incidents, etc." in his 1840 book that would go through several editions.[66]

James T. Lloyd marketed his 1856 "steamboat directory" as a guidebook for western

travelers and a history of steam transportation, but it was primarily a compilation of

steamboat disaster narratives.[67]

      Howland and Lloyd and publishers of individual narrative pamphlets clearly

realized the commercial potential of feeding disaster stories to the American reading

public. In his preface, Howland expressed the purpose of his book: to offer a full

accounting of the many disasters that had befallen Americans in steamboat and trains,

and to provide a memorial to those lost. He also wrote, however, that what most "excite

feelings of interest in the human mind" are the stories of those individuals "suddenly

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[64] *Trenton State Gazette,* July 21, 1856.
[65] *A Minute and Circumstantial Narrative of the Loss of the Steam-Packet Pulaski...* (Providence: H. H. Brown, 1838), AAS; *A Full and Particular Account of All the Circumstances Attending the Loss of the Steamboat Lexington...* (Providence: H. H. Brown and A. H. Stillwell, 1840), AAS.
[66] Howland, *Steamboat Disasters*.
[67] Lloyd, *Lloyd's Steamboat Directory*.

plucked from their usefulness in society."[68] While Howland sought to memorialize the dead, Lloyd claimed his own grand goal of inspiring a solution to transportation disasters: "Our object in the presentation of these narratives is not to gratify a morbid taste for the horrific, but to suggest, in a practical way, the means of abating an evil which is acknowledged to be of immense magnitude." Still, like Howland, Lloyd recognized that there did perhaps exist a morbid taste for the horrific – this might also explain his inclusion of numerous engravings illustrating the disasters, to which he in part attributed an increase of the original price of the book from one to two dollars.[69]

The thrilling and affecting incidents that filled these volumes and daily and weekly newspapers provided a form of entertainment that could not be found in fiction. Writers framed steamboat and rail disasters in the conventions of fiction, building an enthralling plot and heroic or tragic characters, but bolstered the stories' emotional weight by emphasizing their authenticity.[70] Under the headline "A Thrilling Incident," one paper wrote of a near-disaster "equalizing in interest the most highly wrought tale of fiction." Late in 1838 the steamboat *Constitution* was traveling through a storm on Lake Erie when the Captain realized the need to outpace the dangerous weather. The writer described the pivotal moment in gripping language: "Life or death hung on the issue. Certain destruction awaited the boat and her devoted crew, in a few brief minutes, if she did not gain upon the driving storm." In an act of "the most daring heroism," the engineer sat on the safety valve, risking explosion to bring the boat to safety. "We give it as it was

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[68] Howland, *Steamboat Disasters,* v.
[69] Lloyd, *Lloyd's Steamboat Directory,* iii.
[70] Vanessa Schwartz describes a similar blending of authentic stories with literary modes of representation in the news coverage of *faits divers'* in late nineteenth-century Paris. Schwartz, *Spectacular Realities,* 33-39.

told to us," the paper read, "as one of those frequent scenes of real life, whose actual realities are indeed 'stranger than fiction.'"[71]

Thrilling stories of survival and bravery offered readers a view of the fearful nature of steamboat and railroad disasters and created heroes that drove the most compelling parts of the narrative. In retellings of the *Lexington* fire in Long Island Sound, Captain Chester Hilliard's survival became the disaster's signature tale. Hilliard, one of only four survivors, escaped to the water and took refuge on a bale of cotton from the boat, where he remained for days before another boat found him near death. The story came from Hilliard's testimony before the coroner's jury that followed the disaster, which Howland quoted directly, but framed within the larger narrative and illustrated in Howland's book with an engraving showing Hilliard floating in the Sound, it became the key plotline in the true and awe-inspiring drama of the *Lexington* fire.[72]

Writers and compilers of disaster narratives gave similar treatment to the "affecting incidents," often peripheral details that writers highlighted to capture readers' attention and elicit their emotions. Howland's narrative of the 1838 *Pulaski* disaster turned from a tragedy to a romance with the story of Mr. Ridge and Miss Onslow. Ridge had supposedly seen Onslow on the boat before the disaster and she had "arrested his attention." After the boiler exploded, Ridge escaped to the water where he found Miss Onslow. When she urged him to save himself, Ridge responded, "we live or we die together." According to the narrative, Ridge's heroism "kindled that passion which burns nowhere as it burns in a woman's bosom," and "there, upon the 'waters wild'… did they pledge their mutual love." But the story did not end there – Ridge informed his

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[71] *Niles' National Register,* December 1, 1838.
[72] Howland, *Steamboat Disasters,* 180.

companion that he had lost all his wealth in the accident and they would have to suffer through a life of poverty together. Once married, however, Ridge learned that Miss Onslow was the heiress to a large fortune.[73]

Other details represented the tragic mood of disasters. After the *Moselle* explosion, several papers reported a boy on shore "wringing his hands in agony," his family all lost in the water.[74] A reprinted letter from a survivor of the Columbia Railroad disaster in 1836 recalled a Mr. Gibson rushing to his dead wife's side: "Heavens what a sight! The distracted man tenderly dragging from the spot the remains of his 'Julia,' calling upon her in frantic exclamations; but she could only answer by an expiring look of agony."[75] Howland's and Lloyd's narratives were filled with stories of anonymous mothers cradling dying children and lovers meeting death together.

Often the most affecting aspect of the story derived from the nature of the characters involved. In July 1856 a train collision on the North Pennsylvania Railroad near Camp Hill (often called the "Camp Hill disaster") received particular attention because the majority of those killed were young children. The train was full of Sunday school children and their teachers from St. Michael's Catholic Church in Kensington on an out-of-town excursion. When their train collided with another locomotive, more than sixty were killed. Newspapers focused on the train's "living freight of happy children" and the "innocence and helplessness" of the victims. These children "should have called

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[73] Howland, *Steamboat Disasters,* 67-71.
[74] *Ohio Statesman,* April 27, 1838.
[75] *Commercial Advertiser,* October 5, 1836.

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forth extra care," one paper wrote, and their death made the accident even more tragic and startling than most.[76]

Amidst the long list of steamboat disaster stories one that stands alone is the collision of the *Monmouth* and the *Tremont* on the Mississippi River in October 1837. The *Monmouth* had been chartered by the U.S. government to carry nearly seven hundred Indians, mostly of the Creek tribe, to western lands along the Arkansas River designated for their resettlement. Proceeding upriver from New Orleans on a foggy night and on a reportedly improper course, the *Monmouth* collided with the *Tremont,* sending its human cargo into the water. Rescue boats were able to save about half of the passengers, but more than three hundred Creeks drowned in the river.[77]

The fact that the victims of the *Monmouth* collision were Creek Indians undergoing forced removal made what would have been an exciting but typical scene an exceptional story of civilizational demise. Reflections in Howland's and Lloyd's disaster books provided commentary that dramatized the event as a racial confrontation. Howland's summary is worth quoting at length:

> On their way to the spot selected by the white man for their residence, -
> reluctantly leaving the graves of their fathers, and the homes of their childhood, in
> obedience to the requisitions of a race before whom they seem doomed to become
> extinct, - an accident, horrible and unanticipated, has brought death upon *three
> hundred* at once. Had they died as the savage would die, upon the battle field, in
> defence of his rights, and in the wars of his tribe, death had possessed little or no
> horror for them. – But in the full confidence of safety purchased by the
> concession and the compromise of all their savage chivalry, - confined in a vessel
> strange to their habits, and dying by a death strange and ignoble to their natures,-
> the victims of a catastrophe they could neither foresee nor resist,-their last
> moments of life, (for thought has the activity of lightning in extremity,) must have
> been embittered by conflicting emotions, horrible indeed: regret at their
> submission,-indignation at what seemed to them wilful treachery, and impotent

[76] *Delaware State Reporter,* July 22, 1856; *Frank Leslie's Illustrated Newspaper,* August 2, 1856.
[77] Lloyd, *Lloyd's Steamboat Directory,* 126.

threatening of revenge upon the pale faces, may have maddened their dying hour.[78]

The narrative concluded with an illustration of a tomahawk and bow and arrows. Unexpected and unnatural death, tragic in every circumstance, was made even more so here by the explicit contrast made between Creeks' "savagery" and white civilization, represented by steam technology. Besides being a remarkably potent example of the tragic consequences of Indian removal, the *Monmouth* disaster reveals how the inherent drama of steamboat disasters could become riveting theater when writers encased it in a meaningful narrative context.[79]

Written narratives and visual depictions emphasizing the horrific, the beautiful, and the emotional aspects of disaster transformed steamboat and rail disasters into enthralling spectacles for the American public, and they came together fully in the illustrated press. By the time the illustrated papers became a major news medium in the United States, disasters were already a frequent subject of the daily press, publishers had sold pamphlets and books detailing their intricacies, and a visual culture of disaster images was growing around prints mass-produced by firms like Currier's. Naturally, then, illustrated newspapers, which could combine written description with visual representation in unprecedented ways, found tremendous success covering steam accidents for an interested public.

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[78] Howland, *Steamboat Disasters,* 150.
[79] Robert Gudmestad discusses the *Monmouth* disaster within an important broader analysis of the role steamboats played in the Indian removal process. Robert Gudmestad, *Steamboats and the Rise of the Cotton Kingdom* (Baton Rouge: Louisiana State University Press, 2011), 78-96.

Popularized first in England with the *Illustrated London News,* the illustrated

press arrived later in the United States because American publishers lacked the necessary

talent and resources to execute fully an illustrated newspaper on the English model.

Producing wood engravings for illustrating the news was a lengthy and expensive process

that precluded any major use of images in the daily papers. Editors sent artists to the site

of an event, where they would make rough sketches and notes that would later be used in

the studio to make a completed drawing. The artist then transferred the drawing in

reverse onto a wooden block, a process that might take three or four days. An engraver

might then take another week or more to carve the block for printing, meaning

illustrations of an event only appeared well after it occurred.[80] Early penny papers like

the *New York Herald* often included images, but these papers eventually found the cost of

producing many images too high, and images virtually disappeared from the daily press

for the next generation.[81]

Fully illustrated papers came to the United States only once certain publishers

established enough trained artists and financial resources to produce timely illustrations.

The American illustrated press came to be dominated by two papers, one established by

the Harper Brothers' publishing house and the other by British immigrant and engraver

Frank Leslie. *Harper's Monthly Magazine* began printing images alongside text in 1850,

primarily illustrating literature. By the end of 1855, Frank Leslie had combined

illustrations with the weekly news, and in 1857 the Harper brothers followed with

Harper's Weekly. Harper's Weekly and *Frank Leslie's Illustrated Newspaper* both

quickly became a popular supplement to the daily press, particularly with their extensive

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[80] Howland, *Steamboat Disasters,* 20.
[81] Brown, *Beyond the Lines,* 14.

coverage of the Civil War. During the war, the illustrated newspapers reached peak

readerships, with the *Leslie's* audience estimated at 140,000 and the *Harper's* readership

close to 200,000.[82]

As a news format, the illustrated press is a product of a particular window in the

technological evolution of image production. A perfected block for wood engravings had

only made the printing of illustrations alongside movable type possible at the end of the

eighteenth century. A century later another new technology – the half-tone process –

enabled photographic reproductions in newspapers, replacing engravings with

photographs and bringing an end to the novelty of the illustrated press.[83] For a few

decades in the second half of the nineteenth century, illustrated newspapers were among

the most significant modes by which Americans consumed visual images, and they

offered the public an experience of current events unparalleled by the daily, non-

illustrated papers.

The height of the illustrated press thus marks a fascinating transitional moment in

the history of American media and visual culture. Though photographs would not

regularly appear in newspapers until the 1890s, photography was already in use by

midcentury and quickly became the standard for accurate visual reporting. The

representative technique that illustrated newspapers were founded on – the woodblock

engraving – was thus a somewhat antiquated visual technology, and yet creating and

delivering timely illustrated news on the scale that *Harper's* and *Leslie's* achieved

required an advanced and extensive system of production. Frank Leslie boasted in his

paper's first issue, "we have completed an organization of artist agencies throughout

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[82] Brown, *Beyond the Lines*, 22-48.
[83] Brown, *Beyond the Lines,* 234-235.

most parts of the American continent. By their aid we shall have pictorial delineations of every remarkable event that occurs over its vast extent."[84] Illustrated newspapers joined an older representational technique to modern, mass print culture. Their union created a news genre with an unparalleled capacity to animate the events it covered, surrounding accurate reporting with the aesthetic of dramatic storytelling.

This distinctive character of the illustrated press made all kinds of disasters and accidents natural subjects, none more so than frequent spectacular transportation disasters. In just the second issue of *Frank Leslie's Illustrated Newspaper,* the burning of the steamer *George Collier* received lengthy coverage and a large illustration.[85] Transportation disasters appeared often in both major illustrated papers and sometimes found their way to the front page. In the 1860s, *Leslie's* began printing a weekly section called "Home Incidents, Accidents, &c." detailing various odd accidents and deaths – one week readers got short descriptions of a crazed killer, a man found dead in a blizzard in the West, a man run over by a horse, and a train wreck. Like the daily coverage, the content of the illustrated papers reflected the fact that accidents, and large-scale transportation disasters especially, made for great press regardless of the presentation.

Pictorial reporting, though, added a significant new element to the coverage of transportation disasters. The non-illustrated press had made steam disasters national news; now illustrated newspapers brought them to life and made visual imagery a regular feature of Americans' encounters with disaster. The illustrated press was thus particularly designed to create shared spectacles for its audience. As Vanessa Schwartz writes of late nineteenth-century Paris, the newspaper "served as one of the most powerful forms of

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[84] *Frank Leslie's Illustrated Newspaper,* December 15, 1855.
[85] *Frank Leslie's Illustrated Newspaper,* December 22, 1855.

modern mass cultural urban entertainments in the sense that it constituted a collective and

then aimed to please it through newspaper reading."[86] Similarly, Frank Leslie's paper

aimed to create a national audience for dramatic events, arguing that its method would,

without fail, bring readers images of all the important events to deepen their

understanding:

> From his long experience in his business, and an intimate knowledge of every part
> of the Union, [Leslie] has established an unrivalled corps of artist correspondents,
> and has folios groaning with magnificent views of all the cities and distinguished
> places of the thirty-one States, ready to be used at any moment: so that no great
> event can happen, no accident take place… of which Mr. Leslie in some way has
> not anticipated…[87]

In other words, Leslie's system prepared for the unpredictable, granting its readers an all-

seeing eye that could view various events happening simultaneously across the country.

Illustrated papers enhanced the abridgement of space already achieved by written reports

of disasters by envisioning the events for the public. The sights of distant steamboat or

train disasters were no longer reserved for in-person observers but available to anyone

with a subscription.

Illustrated coverage of steam disasters combined the various effects of written

reporting and visual representation, with each enhancing the other. Written descriptions

mirrored those in the daily press in their visual orientation, but now could be partnered

with an image, often on the same page. A *Leslie's* writer detailing a fire on the *George*

Collier could say "the flames cast a lurid glare over the face of the bluff, the thousands of

spectators, and the buildings that towered in silent majesty above" and know that an

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[86] Schwartz, *Spectacular Realities,* 27.
[87] *Frank Leslie's Illustrated Newspaper,* August 2, 1856.

illustration would support the description.[88] In fact, the vivid description may have come

from the same sketches the engraver used to make the final image; reporting could draw

from artist's views rather than verbal eye-witness testimony, making descriptive imagery

more accurate. Images, usually labeled as "drawn on the scene," therefore also verified

the often unbelievable written account as true.

The process of artistic production for the illustrated press itself enhanced both the

reliability and sublime effects of the disaster scenes presented. Illustrated papers,

certainly proud of their unique format, often commented on the process of image

production. A year into publication *Leslie's* printed an article detailing the process by

which illustrated newspapers were made, with illustrations showing the very stages of

their own production. The article happened to appear alongside illustrated reports of two

separate steam-related accidents, making readers very aware of the reporting method.[89]

The artist-reporters involved were not left behind the scenes but often thrust into the story

and the action itself, as in an 1856 report on the *New Jersey* disaster: "While the flames

were still raging, a Philadelphia correspondent and artist sketched the appalling

catastrophe… and to further accomplish our design, one of our best resident artists at

once proceeded to the scene of disaster."[90] The artist actually became the subject of a

front-page image in the *Leslie's* issue of February 23, 1878, which depicts "our special

artist and correspondent, on their way to the scene of the disaster, discovering the body of

one of the victims."[91] The illustration shows three men, their carriage stopped, glancing

back at the foreground figure – a dead man washed up on the beach. Called by the paper

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[88] *Frank Leslie's Illustrated Newspaper,* December 22, 1855.
[89] *Frank Leslie's Illustrated Newspaper,* August 2, 1856.
[90] *Frank Leslie's Illustrated Newspaper,* March 29, 1856.
[91] *Frank Leslie's Illustrated Newspaper,* February 23, 1878.

"an incident of the wreck of the steamship 'Metropolis,'" the image in effect breaks down the divide between public and victim. The captured moment reveals the artist, the public's representative, as a participant observer – a bridge between the viewer and the actual horror of the disaster. By traveling to disaster scenes and sometimes embedding themselves in the episodes of disaster, artists helped bring viewers closer to the events covered in the newspapers while also allowing viewers to experience dangerous events from a removed position of security.

Artists also maximized sublime effects through their imagination and embellishment of the scenes they encountered. Stationing correspondent artists in different areas of the country allowed for their fairly timely arrival to a disaster scene, but artists sketching the scene were, of course, never witness to a climactic moment of explosion or train collision. Artists nonetheless reimagined these moments for readers. *Leslie's* lead image for the Camp Hill collision is a prime example. The caption reads "drawn on the spot by our own artist," and it likely was, but the artist certainly did not see bodies and wreckage flying through the air. The scene that presented itself on the artist's arrival probably looked like the next published image, showing the smoking pile and a large gathering of passengers and others recovering bodies and helping the wounded behind a makeshift shelter. The illustration is devastating, but it lacks the sublimity of the one the artist necessarily drew from the imagination. Together, the images reflect the dual dynamic achieved so often by the illustrated press: accurate news and high drama.[92]

Illustrations of disasters added, in the words of *Leslie's,* "their charms and their horrors" to the accounts of disasters many readers were already familiar with by the time

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[92] *Frank Leslie's Illustrated Newspaper,* August 2, 1856.

the illustrated papers covered them. The illustrated news also gave life to those familiar stories with narrative imagery. The signature affecting incidents of a given disaster typically appeared in images – carefully composed by artists as visual referents to the narrative and emotional symbols of tragedy. Another image from the Camp Hill disaster illustrated a moment from the aftermath when a woman who was lodging nearby nursed a hungry infant she found alone among the ruins.[93] The artist composed the woman, infant, and another child pulling at her dress in a triangular formation, the woman's head dipped toward the child that lies wrapped in her arms and flowing garment. Reminiscent of Madonna and child iconography, the figural grouping accentuates the maternal compassion of the woman and the tragedy of the likely orphaned child. Similarly, a large image of the Long Island Railroad accident in April 1869 shows a woman kneeling by a dead man and child, her expressive gestures of grief suggesting they may be her family.[94] Dressed in white, she stands out against the darker figures that surround her as the physical and emotional center of the image. Illustrations thus complemented the stories that made up such powerful narratives, leaving viewers with memorable symbols of the tragedy.

Because they often included several images, illustrated newspapers could also virtually retell entire disaster stories solely in pictures. Issues covering railroad disasters often showed separate images of the crash, the recovery of bodies from the wreckage, and the care for the wounded in a nearby building, or even combined these into a single image that allowed viewers to track the development of the scene. *Leslie's* coverage of

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[93] *Frank Leslie's Illustrated Newspaper,* August 2, 1856.
[94] *Frank Leslie's Illustrated Newspaper,* May 8, 1869.

the explosion of the *St. Nicholas* in April 1859 included four front-page images.[95] The largest image, occupying the bottom half of the page, has a fairly standard backdrop of burning wreckage and in front shows the "horrible fate of Captain MacMullen." As the accompanying text described, the explosion had trapped MacMullen's legs under heavy debris, and his companions, unable to free him, watched as the captain was consumed by flames. Another image shows "Miss Kennedy clinging by a ringbolt to the wreck," where she remained until "the flames actually burned the hair and skin from her head." The remaining engravings show frightened women cowering from the flames and a nameless woman leaping from the boat with her children in hand. With multiple images depicting specific scenes and characters, disaster coverage was sometimes hardly distinguishable from the fictional stories and literature the illustrated papers often published.

The illustrated press played a central role in recounting and representing steam transportation disasters to the American public. The way Americans imagined and envisioned disaster was largely a product of this moment and its particular visual culture. Fittingly, the decline of the illustrated press coincided with the end of the steam era. As the century progressed, artists and engravers increasingly worked from photographs rather than on-scene sketches, which made for mostly person-less scenes of wreckage rather than more dynamic and sublime images. After the invention of the half-tone process, newspapers turned to photography, which could present a real, seemingly unmediated, image but could not provide the same visual narrative that artists had achieved in illustration. An 1893 photograph printed in a transitioning *Frank Leslie's Illustrated Newspaper* demonstrates a new vision, showing with stark realism a close-up

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[95] *Frank Leslie's Illustrated Newspaper,* May 21, 1859.

view of a wrecked train, a frozen moment with no figures remaining and no sign of the chaos that created such destruction.[96] In the decades when the dangers of steam transportation shocked the nation, though, illustrated newspapers inundated Americans with images of steamboat and rail disasters, sometimes even in the same issues. Illustrated newspapers capitalized on existing interest and an emerging visual culture, but cemented visual representation and sublime imagery as an essential feature of Americans' experience of disaster in the nineteenth century.

Like other spectacular events – natural disasters, city fires, shipwrecks – steamboat and rail disasters captured public interest and became the subject of narrative, artistic, and literary representation. Depictions of steam disasters grew from traditional conceptions of the sublime and an existing visual culture of disaster scenes, but they also embodied something new – a vision of modernity dominated by awe-inspiring technological power. The particularities of technological danger, combined with new media enabled by expanding print culture and advancing techniques of image production, generated a profusion of written and visual representations that brought the fear and horror of disasters to the American public but in the trappings of entertainment and fiction. In visualizing disaster, artists and writers made steamboat and rail disasters an intelligible category of modern experience. Collectively, their renderings constitute a narrative genre that displayed the destructive power of the machine while softening the actual experience of danger and made frightening disasters into emotional dramas full of potential meaning.

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[96] *Frank Leslie's Illustrated Newspaper,* September 28, 1893.

Knowing how exactly the reading public responded to disaster representations is difficult, though the success of narratives, prints, disaster books, and press coverage suggests a high level of public consumption. What is clear is that writers, artists, and publishers recognized the potential influence of their depictions and anticipated a significant response. S. A. Howland believed his collection of affecting stories would have a moral influence, awakening "better feelings" and thoughts of charity in readers.[97] He and others also saw the potential for change. Again, the preface to *Lloyd's Steamboat Directory* noted the goal of "abating an evil." James T. Lloyd recognized this growing evil in American life and determined that thrilling stories and emotional narratives might be the best weapon against it. His own narrative summary of the *Monmouth* tragedy and the death of several hundred Creek Indians seized upon the helplessness of the "unhappy red men" as a device to lament the "massacre" of passengers aboard steamboats.[98]

Lloyd's hopes of creating influential representations were frequently echoed in the press, where horrific or tragic description often prefaced condemnations of the industry's dangers.[99] The publishers of the illustrated press were likewise aware of their images' emotional power. *Leslie's* published one of its most gruesome images after the Angola railway disaster, in which a train derailed off a bridge, crashing and catching fire at the bottom. The front page of *Leslie's* January 11, 1868, issue showed blackened forms spread out on tables – "the charred and unrecognized remains of the victims."[100] An editorial printed the following week expressed the wish that the blackened bodies themselves could have been sent around the country to arouse public feeling; instead, the

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[97] Howland, *Steamboat Disasters,* vi.
[98] Lloyd, *Lloyd's Steamboat Directory,* iii; 126-127.
[99] See, for example, the *Daily Ohio Statesman,* September 2, 1855.
[100] *Frank Leslie's Illustrated Newspaper,* January 11, 1868.

visual images of them distributed across the country accomplished a similar goal.[101]

Leslie's coverage after the Camp Hill railroad tragedy noted, "it is not until we see pictorial representations, until we see the terrors of the scenes brought vividly before our eyes by the genius of art, that we can fully comprehend the magnitude of evils…"[102]

For some, the potential influence of disaster representations was harmful. In an 1853 letter to a New York paper, a writer signing only as "Philadelphia" defended the Pennsylvania Railroad line against a perceived attempt to "injure" it with a sensationalist engraving "*purporting* to be a *correct* representation of the late accident." The writer criticized the "wonderful exaggeration" of the scene and questioned whether, in general, the American public "must be treated to weekly illustrations of railroad accidents, explosions, &c." Other railroad lines, the letter charged, suffered more accidents that were not illustrated. The writer suggested that papers employ a large number of artists "and station them at intervals of not less than a mile apart" just so that the public could "feast upon daily reports of the 'hairbreadth escapes from collision.'" This sarcastic suggestion was not all that dissimilar from what Frank Leslie and others would establish just a few years later. To this critic, the effect that illustrations could have was significant, and the letter concluded with the writer's refusal to "suffer misstatements and beautifully colored illustrations of 'frightful accidents' to lead the public astray."[103]

Certainly there was some justification for complaints about dramatic, sensational storytelling and imagery. Artists for the illustrated press purposely created spectacular scenes by imagining the exact moment of collision or explosion. They linked anecdotes

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[101] *Frank Leslie's Illustrated Newspaper,* January 18, 1868.
[102] *Frank Leslie's Illustrated Newspaper,* August 2, 1856.
[103] *Philadelphia Enquirer,* March 30, 1853.

together to make compelling overall narratives, and they included depictions of disasters'

most heart-rending moments to cast a tragic mood over the coverage. Writers sometimes

commented on their own peculiar power and admitted there might be an unsavory

element to their coverage. Their descriptions occasionally pause to suggest that "to detail

the facts would be revolting," or "it would be harrowing the feelings without reason to

describe all the painful and heart-sickening incidents," but the writers usually described

those incidents anyway.[104] An article in *Frank Leslie's* questioned the so-called accurate

accounts of all chaotic disasters, especially steamboat boiler explosions. "In the

newspaper accounts of such a catastrophe we are regaled with 'Mr. John Smith's

account' and 'Mr. William Jones's statement,' both dressed into something like an

agreement of style, and both bearing upon their face evidence of the fact that these

gentlemen, in the excitement of the moment, saw little or nothing." The writer then

playfully mocked the practice with an extremely vague, invented disaster narrative. The

sudden overwhelming terror of these accidents meant that newspaper correspondents

almost always worked "from hearsay and imagination," stringing together details and

adding in narrative flourishes – this was, in some ways, simply the nature of the

reporting.[105]

And yet as eye-witness accounts made apparent, the gruesome, the shocking, and

the tragic details were real, products of the tremendous scale and force of technological

disaster. After the explosion aboard the steamboat *Saluda,* survivor Henry Ballard really

did find the breakfast he had been eating covered in blood, "and the tin cup that I had up

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[104] *Trenton State Gazette,* July 21, 1856; *Frank Leslie's Illustrated Newspaper,* July 11, 1857.
[105] *Frank Leslie's Illustrated Newspaper,* October 17, 1863.

to my mouth at the time mashed flat as a dollar."[106] Observers of other disasters watched

as bodies were blown a hundred feet into the air. This was the character of these events; a

sensationalist press may have brought them to public attention and made them appealing

objects for popular consumption, but the process had less to do with exaggeration and

more to do with selection and framing. Artists, writers, and publishers took new episodes

of terrifying destruction and made them sublime but ultimately palatable stories. As

stories, they could be fearful without being frightening. As stories, they could be

contemplated as instructive tales and even reasons for action.

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[106] Private Journal of Henry Ballard, entry dated April 9, 1852, Huntington Library.

Chapter Four:
The Lessons of Disaster

"REMARKABLE & SHOCKING DEATHS" – the large, bold letters appeared at the top of a two-page broadside published in New York in 1829. Framing the headline was a patterned border made up of black coffins. In the increasingly sensationalist American press of the nineteenth century, words like "remarkable" and "shocking" appeared frequently as descriptors for dramatic deaths, so much so that it is a wonder those deaths continued to be remarkable and shocking at all. What made them so were the stories told and retold about them in spoken and printed form. In this case, an anonymous author presented to readers four lyrical ballads describing and lamenting four different fatal tragedies. The broadside united these events under the shared headline, but the grouping is striking. The first three poems relate oddly similar incidents: a mother and her three children burned to death in their home, the death of three sons and one daughter of Mr. William Lewis, victims of a house fire, and the burning in their home of the four children of Mr. Cyrus Hall. Then there's the last poem – an account of a steamboat explosion that killed some "30, or 40 men."[1]

The unidentified steamboat disaster (likely the *Car of Commerce* explosion in May 1828) loosely fit the theme, death by fire, but in many other ways it does not seem to belong. The first three poems all describe events that occurred locally in New York, the last details an explosion on the Mississippi River. The first three events happened within a three month period in 1829, the explosion took place in 1828. The scale of the steamboat disaster, in death toll, likely influence, and press coverage, vastly outreached

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[1] Broadside, "Remarkable and Shocking Deaths," 1829, American Antiquarian Society.

the others. Nevertheless, the poet apparently saw in the steamboat explosion many of the same qualities shared by the numerous other dangers that Americans faced daily. In a similar manner, the American public at large worked to fit the increasingly frequent and notable steam transportation accidents into a familiar concept – remarkable and shocking deaths.

Aiding that process were orators and writers who acted as translators, forming instructive narratives from the details of specific disasters that drew universal moral lessons that Americans could live by. As recognized authorities traditionally charged with interpreting tragic episodes of mass death for the public, American clergymen delivered and published sermons about individual steamboat and rail disasters that found audiences beyond their congregations. Steam disasters became fodder for lessons about humanity's relationship to the divine and the importance of living by Christian values. Secular lessons emerged as well. In the aftermath of disasters, writers gave the events a narrative form that revealed to reading audiences examples of good and bad moral character. In a few cases, disaster stories were assembled and published in popular collections that reveal much about the values and aspirations of the American reading public. The lessons of transportation danger and disaster even found their way into morally instructive stories for children and young adults. These disparate responses all sought to interpret these events in a way that allowed audiences to comprehend easily the significance of steam transportation dangers to their own lives and experiences.

This task – making sense of these horrific events through recognizable patterns and forms – would not prove easy. The early efforts often looked like the 1829 broadside, as authors awkwardly grouped disasters of steam technology with older tragedies even

when the distinctions were startling. Though accidents aboard steamboats and trains bore enough similarity to earlier catastrophes that they could reveal standard theological lessons, religious authorities also soon recognized that steam disasters presented something new. As a pattern of steam disasters developed, ministers struggled to explain technological dangers with traditional narratives about divine power. Instead, they turned to material explanations and potential solutions to what they increasingly identified as a human problem. Similarly, secular writers found in steamboat and rail disaster stories moral lessons about human character that reinforced emerging middle-class values. Writers also necessarily crafted new lessons out of the particularities of steam transportation technology. From the perils of steam travel, writers assembled a set of prescriptions for how Americans should face modern dangers and relate to modern technologies.

Thus, while steamboat and rail disasters fostered the thoughtful reflection and moralizing impulse that followed any tragedy, the lessons learned also spoke to the distinct challenges of a modern, mobile life. What emerges from the many instructive interpretations of steam-related dangers is evidence of a complex but coherent, shared cultural framework through which the American public could understand and relate to steam disasters and their victims. Alongside other public responses to the dangers of steam, sermons, disaster narratives, and fictional stories made explosions, collisions, and derailments comprehensible features of modern travel.

The poet of the 1829 broadside viewed both the steamboat disaster and the fatal house fires in religious terms. Each event was a visitation from a powerful God and a

reminder to humans that their temporary lives on earth were entirely subject to his will and his mercy. This understanding reflected an attitude about death and disaster that had a long tradition in American Christian culture by the time deaths by steam transportation accidents became frequent. The impulse to view tragedy through a Christian lens was nearly automatic for most early-nineteenth-century Americans, and the kind of sudden, horrible deaths described in the broadside poems received particular attention. Fire, natural disasters, disease, shipwreck, and other large-scale fatal accidents were dramatic and usually unanticipated. These were public, community tragedies with widespread influence; the victims were many and typically diverse in age and social station. The scale of such events signaled divine significance, so members of the affected community often looked to clerical authorities to explain the meaning behind God's sudden show of divine power. Clergymen were typically among the first to facilitate what became a public mourning process and to interpret the disaster's moral significance for their audiences.[2]

Large-scale tragedies offered ministers unusual opportunities to call attention to God's power and offer spiritual and moral instruction to an audience that was eager for it. The more unexpected, dramatic, and horrific a tragedy was, the more urgent and powerful the religious message could be for the living. Episodes of mass death underscored major theological principles, demonstrating both the incomprehensibility of an all-powerful,

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[2] For manifestations of this religious impulse to explain and interpret disaster, see Kevin Rozario, *The Culture of Calamity: Disaster and the Making of Modern America* (Chicago: University of Chicago Press, 2007), Chapter 1; Lauri Bauer Coleman, "Rain Down Righteousness: Interpretations of Natural Events in Mid-Eighteenth-Century Boston" in *Remaking Boston: An Environmental History of the City and Its Surroundings,* eds. Anthony N. Penna and Conrad Edick Wright (Pittsburgh: University of Pittsburgh Press, 2009), 233-258; Maxine Van De Wetering, "Moralizing in Puritan Natural Science: Mysteriousness in Earthquake Sermons" *Journal of the History of Ideas,* 43, 3 (Jul. – Sep., 1982); Adam Jortner, "Cholera, Christ, and Jackson: The Epidemic of 1832 and the Origins of Christian Politics in Antebellum America" *Journal of the Early Republic,* 27, 2 (Summer, 2007).

mysterious God and the revelation of his will in the natural forces of the world. Ministers also tied catastrophe to human behavior, and because an event like a natural disaster or a disease epidemic affected an entire community, they often called for renewed faith and broad spiritual reform.[3]

Religious leaders also directed their spiritual instruction toward individuals, specifically regarding one's approach to his or her own life and death. The suddenness of these various public tragedies made them especially troubling to nineteenth-century Americans who placed enormous cultural value on the Christian notion of a "good death." As Drew Gilpin Faust argues, "dying was an art" for Americans of the antebellum era, and that art was based in centuries-old Christian attitudes about the proper way to meet one's earthly end. By midcentury, Faust explains, a set of guidelines for dying had seeped beyond religious doctrine and into American middle-class culture. A good death took place at home, surrounded by family, and, most importantly, the dying person met death well-prepared to accept and even welcome it. The role of kin was also essential; family members were to be by the deathbed and hear last words in order to understand the dying person's spiritual readiness. Sudden fatal accidents of any kind therefore robbed their victims of a good death and challenged the standard mourning process for those left behind.[4]

Sudden tragedies not only complicated traditional mourning, they also reminded the living of their own mortality. Ministers recognized that much of the potential moral influence of tragedy rested in the sudden, frightening manner in which the victims had

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[3] Van De Wetering, "Moralizing in Puritan Natural Science," 417; 429.
[4] Drew Gilpin Faust, *This Republic of Suffering: Death and the American Civil War* (New York: Vintage Books, 2008), 6; 10-11.

perished, and their sermons typically emphasized the implications of such death for their

audiences. The 1829 broadside exemplifies in poetic form the typical interpretive

formula. First, there were often lengthy lamentations emphasizing the depths of the

tragedy:

> How heavy a stroke it must be,
> So suddenly called to Part,
> The Parents methinks I still see
> Wipe the tear with a sorrowing heart.

The suddenness of death often became the event's most tragic aspect, but it also provided

the primary lesson: death could come to anyone at any time and God was the ultimate

judge whose plan humans could neither understand nor change. The poet reinforced both

the transitory nature of life and the inability of humans to alter their fate:

> Tho' the Parents may sorrow & mourn,
> Their Foot-steps they cannot Retrace.
> Your children can never Return,
> to sweeten your journey below;
> they dwell in eternitys bourn-
> But thither you shortly must go.

Finally, the prospect of a sudden end and the desire for a good death led to a recurring

warning to live morally and be ready for death:

> O speedily may you Prepare;
> For Death is pursuing His Prey;
> And Conscience now bids You be ware,
> Lest he suddenly call You away![5]

Together, these various themes formed a fairly common narrative applied to a variety of

incidents of sudden, mass death.[6]

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[5] "Remarkable and Shocking Deaths." Commonly cited scriptural examples of this theme include "For yourselves know perfectly that the day of the Lord so cometh as a thief in the night," (1 Thes. 5:2, King James Version) and the parable of the ten virgins (Matt. 25: 1-13, KJV).

Thus, when steamboats started exploding and catching fire, American clergymen already had a category in which they could place these shocking new events. After the 1824 *Aetna* steamboat explosion, one of the first steam disasters to garner national attention, minister John Stanford delivered a sermon in the New York City Hospital where some victims had been taken. Stanford situated the event among the host of other terrible tragedies that had always visited humankind. "War, Pestilence and Famine, are public calamities, which, age after age, have destroyed millions of the human race," Stanford said. Some of these had befallen his own community; Stanford referred to a "dreadful pestilence," yellow fever, present in New York City starting in 1795, which during two months of 1798 had killed close to two thousand people. To such disasters Stanford added earthquakes, storms, and other events created by the "elements of nature; Earth, Air, Fire, and Water." Under God's direction these elements could become "instruments of destruction," and in the case of the *Aetna*, fire and water combined to cause explosion and death. Both the means and scale of destruction made clear to Stanford that the explosion was another visitation of Providence upon a sinful human world, and thus in a familiar way, he turned his efforts toward interpreting its divine meaning for a grieving community.[7]

Steam transportation disasters presented an ideal subject for the kind of religious interpretation applied to other forms of accidental and catastrophic death. A steamboat explosion or train derailment killed Americans in large numbers, suddenly and without

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[6] On the origins of this traditional narrative, see David E. Stannard, *The Puritan Way of Death: A Study in Religion, Culture, and Social Change* (New York: Oxford University Press, 1977) as well as David E. Stannard, ed. *Death in America* (Philadelphia: University of Pennsylvania Press, 1974).

[7] John Stanford, "Aetna, A Discourse Delivered in the New-York City Hospital…" (New York: E. Conrad, 1924), 8-9.

warning, and in dramatic fashion. Like Stanford, many ministers delivered sermons after major steam disasters to interpret God's visitation and to reinforce traditional theological lessons. "When the circumstances of death are most terrific," one minister said after a steamboat disaster, "they are commonly only the circumstances of an hour to the sufferers, but they smite upon the bosoms of those who hear, and constrain them to ask if they would be ready for such a scene."[8] For listeners who had lost a friend or family member, sermons were personal, but ministers also directed their discourses to larger audiences, seeing in its scale and drama profound religious importance.

The potential influence of "disaster sermons" grew significantly when the sermons found their way into print. The fact that many sermons about steamboat and rail disasters were published suggests the appeal of such discourses. In some cases, congregations requested that a sermon be published. After he gave a sermon on the burning of the *Lexington* steamboat in Long Island Sound in 1840, George Burgess, minister of Christ Church in Hartford, Connecticut, acquiesced to requests for publication, noting he felt compelled by "the same feelings" that "constrained him to speak of this distressing visitation" to make his words available to those who might find lessons therein.[9] Days after William M. Rogers delivered a similar sermon on the *Lexington* in his Boston church, six members of his audience wrote the minister expressing their eagerness to see his discourse published. These clergymen and others who published disaster sermons sensed that interest and potential influence were widespread. "That *good* may be done" was the stated reason for Rogers's listeners

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[8] George Burgess, "A Sermon, Preached in Christ Church, Hartford…," (1840), 8. AAS.
[9] Burgess, "A Sermon Preached in Christ Church."

requesting publication, and it seems published sermons often had the desired effect.[10] The *American Quarterly Register* published a review of the sermon by Rogers and another by John S. Stone, claiming that "these affecting visitations of Providence are intimately connected with the revivals of religion which are now gladdening our cities and towns," and the sermons had "awakened a solemn feeling in bosoms, which before had been strangers to penitence and prayer."[11]

Clearly, religious leaders believed sermons on steamboat and rail disasters, like those about earlier forms of mass, public tragedy, offered valuable lessons to Christians everywhere. Ministers had often published the sermons they gave about specific tragedies, but with American print culture expanding in the early nineteenth century, printed sermons on steam transportation disasters likely found even larger audiences. Even if the published sermons themselves were not circulated widely, newspaper coverage of disasters often included portions of sermons, and many sermons appeared again in popular published disaster narratives and collections like S. A. Howland's *Steamboat Disasters and Railroad Accidents.*[12] Printed sermons widened the circle of mourners from the original congregation hearing the sermon to a broader, abstract mourning public. Once put into print, sermons on steam disasters joined other printed responses that were all being read by many who had no direct connection to the actual

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[10] William M. Rogers, "Rev. Mr. Rogers's Sermon, Occasioned by the Loss of the Harold and the Lexington" (1840), 2.
[11] *American Quarterly Register* 12 (1840), pp. 396-397, quoted in Ken Kurihara, "The Voice of God Upon the Waters" *CORIOLIS,* 2, 1, 2011, 10.
[12] S. A. Howland, *Steamboat Disasters and Railroad Accidents in the United States"* (Worcester: Dorr, Howland & Co., 1840).

event.[13] Like other printed responses to steam disasters, religious interpretations therefore formed another widely shared narrative that became a major aspect of the emerging public discourse about steam's dangers.

Especially early on, religious interpretations followed traditional models. Steam accidents brought sudden, unanticipated death on a mass scale. Sermons and news reports alike frequently lamented how disaster victims had been ushered into eternity in just a single moment. In his sermon on the *Lexington* disaster, the Reverend S. K. Lothrop of Boston commented extensively on this unpredictability, saying "no warning was given to prepare the thoughts, no omen of peril had been noticed."[14] Steam disasters offered the same lessons that earlier catastrophes had about God's will and the necessity of early preparation for death. The many sermons delivered and then published after steamboat and train disasters varied from one to another in perspective and tone, but their overwhelming message was nearly universal and quite familiar: death was unpredictable and unavoidable.

The message was often employed to greatest effect when targeting the young, as author C. Wield did shortly after the fire aboard the *Lexington*.[15] Although not a sermon, Wield's published pamphlet, "A Warning Voice from a Watery Grave," applied the common Christian interpretation, indicated by its alternate title: "A Solemn Proof of the Uncertainty of Life and Importance of An Early Preparation for Death." To develop this

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[13] Though mourning practices were moving from communal rituals to private individual family rituals in the nineteenth century, printed sermons suggest one way in which mourning remained communal, though on the level of a dispersed, abstract reading public. For more on nineteenth-century mourning as middle-class ritual, see Karen Halttunen, *Confidence Men and Painted Women: A Study of Middle-Class Culture in America, 1830-1870* (New Haven: Yale University Press, 1982), 124-152.

[14] S. K. Lothrop, "A Sermon, Preached at The Church in Brattle Square…" (Boston: John H. Eastburn, 1840), 10.

[15] On Christian narratives about death directed toward children, see especially Stannard, *The Puritan Way of Death,* 44-71.

idea Wield detailed the premature death of Miss Sophia W. Wheeler, a personal

acquaintance. The eighteen-year-old Wheeler was returning from a southern visit and was

scheduled to be married in a week when she died in the *Lexington* disaster. Wield

stressed that Wheeler was a devout young woman, but her faith had not saved her, nor

had her age. Life was to be spent preparing for death and contemplating mortality, Wield

reiterated over and over, and yet most people neglected to consider and prepare for their

inevitable end. The young were subject to this forgetfulness more than most, "too

generally prone to expect a long life" and to think of themselves as immune from death's

grasp. Tragedies like the *Lexington,* Wield said, showed the folly of such beliefs as so

many young victims lay at the bottom of Long Island Sound.[16]

Though Wield's "dear youthful readers" were the audience to which he directed

his primary warnings, the author was clear that "the grave opens and reduces all to

perfect equality."[17] The fact that steam disasters were so sudden and unpredictable meant

their destruction was disturbingly indiscriminate. Religious interpretations frequently

emphasized the diversity of victims and described for audiences the different types of

people among the dead, noting death had come to all equally. Minister Orren Perkins

wrote about the numerous victims of the *Arctic,* which collided with another boat and

sank at sea: "The wise and simple, the mighty and the mean, the lordling and the slave…

sleep together, without a coffin or a shroud to separate their mingling dust."[18] Others

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[16] C. Wield, "A Warning Voice from a Watery Grave! Or a Solemn Proof of the Uncertainty of Life, and Importance of an Early Preparation for Death!" (New York: Sackett & Sargent, 1840), 10, AAS.
[17] Wield, "A Warning Voice," 8-9.
[18] Orren Perkins, "Lessons of the Sea: A Sermon on the Loss of the Atlantic Steamer Arctic…" (1854), 3, AAS.

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similarly described a leveling effect. The final lines of a published poem written for the

Lexington disaster summed up the sentiment:

> The grades and distinctions subsisting below,
> That raise or depress us, -O! where are they now?
> The noble, the ignoble, the coward, the brave.
> Are lying, all equally low, in the grave;
> The highest, the proudest, the wealthiest bow
> As low as the poorest, the lowliest, now.[19]

These observations demonstrated the insignificance of earthly circumstances and

also warned audiences that no one was exempt from the prospect of early death. In a

tactic repeated by many ministers, Wield took his readers on an imaginary tour through

the *Lexington* victims' underwater grave, highlighting representatives of different shades

of humankind. John Stanford concluded his sermon on the *Aetna* by noting the "variety

of character and station" among the victims. The minister grouped them into five

categories, each offering a particular lesson. "Mrs. Furman, aged 44," a mother of seven,

represented the first, revealing the importance of "family virtue." The recently married

Mrs. Merserole, age twenty-two, showed all to "give your warmest love to a Saviour's

hand." For the children, Stanford mentioned ten-year-old Caroline Furman. In the fourth

category the minister placed young businessmen. Finally, Stanford noted the "people of

colour" on board the *Aetna*, to whom the disaster taught "that they share alike in [God's]

mercies and his judgments." "Under these *five* classes of sufferers you may arrange

yourselves," Stanford told his audience. Stanford's categorization transformed the

individual sufferers into general archetypes of American society. His message was clear:

among the victims of the *Aetna* explosion there was represented every American. Such

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[19] Howland, *Steamboat Disasters,* 221.

events proved that God's administration of death was indiscriminate; it could strike anyone at anytime, regardless of their position in life.[20]

Clergymen certainly hoped to illustrate for audiences the enormity of God's power over human life, but they also worked to reveal his saving grace. Minister George Burgess told his congregation after the *Lexington* disaster that uncertain death was a blessing from God; if all knew the circumstances and moment of their death, "the most stirring impulses" of our souls, namely the impulse to call upon the Lord, would lose their strength.[21] To underscore the idea, John Stanford told the story of a woman who had inhaled a large amount of steam and in her final moments thanked God for the accident that was to bring her to him sooner. Stanford challenged his audience to consider if they were prepared to meet their own deaths in such a manner.[22] Ministers implored their audiences to turn to God, declaring that preparation could remove the fear of death; for a faithful Christian, one pastor told his congregation, "sudden danger will be perfect safety. Sudden death, but 'going home.'"[23]

Because steam disasters revealed such familiar lessons, ministers often put them into direct comparison with other forms of mass destruction. As Stanford had when discussing the *Aetna* explosion, some referred to earlier calamities like disease or shipwreck to provide context for audiences and establish a pattern of Providential visitations. While placing steamboat and train disasters into the larger category, however, clergymen also often labeled them as more tragic and horrifying than anything that had

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[20] Stanford, "Aetna," 19-20.
[21] Burgess, "A Sermon, Preached in Christ Church," 7.
[22] Stanford, "Aetna," 15-16.
[23] F. Reck Harbaugh, "The Burlington Disaster. A Sermon Preached in the Presbyterian Church, in Burlington, N.J…" (Philadelphia: Henry B. Ashmead, 1855), 20.

come before. The sentiment that the recent disaster was the worst calamity in public memory was a frequent refrain.[24] Some of this was surely intentional overstatement meant to focus attention on the subject of the day; as Stanford pointed out, a steamboat explosion typically killed on a much smaller scale than something like an epidemic of yellow fever. Still, in those qualities that made for rousing spiritual discussion – gruesome destruction, sudden death, the diversity of potential victims – steam disasters appeared as extreme as anything.

Ministers' descriptions of the particular severity of steam disasters might also have been a product of an early confrontation with an unfamiliar, mysterious technology. The dangers produced by steam technology quickly presented a more profound and complete challenge to the concept of the good death than other familiar tragedies. Drew Gilpin Faust argues that the destruction of the Civil War disrupted the standard requirements for a good death in unprecedented fashion. Soldiers not only died suddenly but away from home and families, and their bodies were left unrecognizable or never recovered to allow for the mourning of close kin.[25] Earlier, however, albeit on a much smaller scale, steam-powered transportation killed in a similarly troubling way, and ministers were quick to identify these disturbing tendencies. All accidental deaths were sudden, but something like a steamboat explosion was even more so, literally ending multiple lives in a single moment. Tragedy could always strike anyone, but accidents involving steamboat passengers often killed, in one blow, a vast array of humanity. Ministers saw in steam disasters a higher degree of sudden catastrophe, and the

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[24] See, for example, Wield, "A Warning Voice," 23.
[25] See Faust, "Dying," in *This Republic of Suffering*.

profundity of these new events was likely enhanced by the mysterious nature of boiler explosions in particular, which awed and mystified Americans for years.

Ministers also noted the particular consequences of tragedies that combined this powerful new technology with transportation. By their very nature, transportation disasters like shipwrecks and steam disasters occurred on the road, leaving victims physically distant from any permanent locale, be it their origins or destinations. Steam disaster victims typically died among strangers, away from family and the comforts of home. Worse yet, victims' bodies were often left mutilated and unrecognizable, making the traditional mourning process impossible. Rescuers sometimes buried recovered bodies right on the shore of the lake or river where an accident took place; more often, bodies were never recovered at all.[26] Narratives of steamboat disasters are filled with references to the "watery graves." The absence of bodies and the thought of them buried underwater, their graves "unmarked," intensified the sense of loss.[27] Speaking of victims of both the sailing vessel *Harold* and the burned steamer *Lexington,* the Reverend Lothrop of Boston stressed this finality: "No tomb shall plead to their remembrance. No human power can redeem their forms. The white foam of the waves was their winding sheet, the winds of the ocean shall be their eternal dirge."[28]

Ministers underscored the severity of steam disasters through extended comparisons to other kinds of mass death. "To be shipwrecked is terrible," Lothrop noted, "but in a shipwreck there is room for action, and consequently for hope." He continued, "to die in battle is terrible… but in the battle there is *action,* and to the very

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[26] J. T. Lloyd, *Lloyd's Steamboat Directory, and Disasters on the Western Waters* (Cincinnati: James T. Lloyd & Co., 1856), 265.
[27] Howland, *Steamboat Disasters,* 202.
[28] Lothrop, "A Sermon, Preached in the Church in Brattle Square," 9.

last there is *hope...* and if at last death come, sudden and violent, there is, it may be, the

consciousness of a noble duty nobly done."[29] Struggling to find a comparison for an 1855

rail disaster near Burlington, New Jersey, a local pastor named F. Reck Harbaugh

likewise turned to war, but concluded that "the slaughter of the battlefield lacks its chief

terror – *Its unexpectedness.*"[30] George Burgess emphasized the widespread nature of the

new threat: "for the first time, our waters, which are weekly and daily traversed by some

of us, were lighted by the blaze of that most awful and most fatal destruction, which can

meet the path of the traveller." To Burgess, a steamboat disaster like that of the *Lexington*

was more unexpected and frightening because it occurred "on the very way which so

many of us are accustomed to pass… without any circumstances of danger."[31] Other

episodes of mass destruction were substantial and terrifying, and yet to these observers,

steam-powered transportation and its associated dangers expanded the probability that

victims would have no chance to prepare for death and widened the circle of people who

could potentially meet such a troubling end.

     If steam disasters were a more extreme tragedy than what had been witnessed

before, this only made the proverbial lesson that humans should prepare for death that

much more urgent. But the distinctions many drew between steam disasters and other

tragedies were not just a matter of degree, but of kind; many clearly thought they were

contending with a form of disaster that raised questions about the meaning of life and

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[29] Lothrop, "A Sermon, Preached in the Church in Brattle Square," 10-11.
[30] Harbaugh, "The Burlington Disaster," 16.
[31] Burgess, "A Sermon, Preached in Christ Church," 8; 11.

death, in the words of pastor W. H. Furness, "with new force."[32] As a whole, while sermons following steam transport disasters reflect an established religious tradition, they also lay bare the fact that these events created distinct interpretive impulses. In particular, clergymen interpreting the disasters increasingly struggled to fit them within the paradigm that said tragic, sudden death was unavoidable, incomprehensible, and divinely ordained. The idea that earthly life was temporary and proper preparation for death necessary was a deeply embedded religious and cultural response to tragedy that long remained influential, but religious interpretations show that this response eventually competed with, or at least existed alongside, another conversation about danger, modern technologies, and the role of humans in controlling them that arose from assumptions about the way technology revolutionized mobility.[33] Danger may have been unavoidable and expected in an earlier age, but a modern era defined by space-time compression had heralded travel that was fast, convenient, and safe; steam disasters challenged these expectations of modern travel and thus inspired conversations about reform.

Boston minister William M. Rogers's sermon on the *Lexington* disaster evidences this shifting response. The sermon began with a familiar refrain about Providential design: "there are no accidents in the government of God, no calamities which come unforeseen." Nevertheless, Rogers's sermon became a lengthy discourse about the difference between older sea disasters and steamboat accidents like the *Lexington* fire.

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[32] W. H. Furness, "A Discourse Delivered on the Morning of the Lord's Day, January 19, 1840…" (Philadelphia: C. A. Elliott, 1840), 9-10.

[33] Ken Kurihara's essay "The Voice of God upon the Waters" successfully demonstrates that "sermons on steamboat disasters agreed with the sentiment and the emotional need of people in the mid-nineteenth century" by connecting them to established ideas about the fragility of human life and the necessity of proper preparation for death. The essay does not, however, identify or explain the shifting attitudes about Providential design and human responsibility that marks these interpretations as distinct from those responding to shipwrecks or other disasters. Kurihara, "The Voice of God upon the Waters," 11.

Rogers's address was intended to cover both the burning of the sailing ship *Harold* and

the steamboat *Lexington,* so the subject lent itself to comparison. Beginning with the

Harold, Rogers discussed the difficulties faced by sailors on the ocean, frequently

repeating the biblical line "there is sorrow on the sea." Sailors were often subject to early

death, Rogers said; "they live in their coffins and their graves are beneath them." Then

the sermon took a turn: "But these are the common and expected casualties of the sea,"

Rogers said. The sea had always been a known danger, so much so that it had become

"natural" for a sailor to meet his death on the water and the public was rarely affected by

these events. The *Lexington* reflected a new moment – unnatural death, Rogers implied.

Steam power had increased the number and diversity of daily travelers, so accidents no

longer killed "the nameless and homeless sailor," but instead "the known, the loved, the

honored, the pride and joy of many hearts." Rogers thus characterized steamboat disasters

as a new category of transportation accidents, and he placed the *Lexington* in that

category among other well-known steamboat disasters. Rogers identified the apparent

pattern of steamboat accidents as a "dismal history" of tragedies bearing national and

public significance, and as a problem sure to continue into the future.[34]

Rogers's sermon suggests how steam's dangers, because they were technological,

offered new avenues of religious interpretation. The qualities of steamboat disasters

strengthened the traditional divine message Rogers interpreted for his audience, but the

minister also identified a new sin that had contributed to the disaster – human pride in

modern technology. Man, Rogers said, had "imprisoned the fire," and made air and water

"toil for him like bondmen." Rogers then used these modern circumstances to show

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[34] Rogers, "Rev. Mr. Rogers's Sermon," 3-8.

God's power to be even more profound. "In the very midst of [man's] triumphs over nature," Rogers said, God had revealed his strength. Technological progress had given humans a false sense of security and control, but in fact life was more uncertain than ever.[35]

George Burgess similarly maintained the standard line, reminding his audience that God employs "agents which can neither be controlled nor escaped." While Burgess held strong to the belief that death and destruction were the inescapable consequences of sin, his sermon also reveals a minister wrestling with the implications of new, modern conditions. He referred to "the continual troubles of a world of change" and suggested that in the modern world, which was "more populous, and full of ambition, bustle and gaiety" than ancient times, life was "apparently made more uncertain, and subject to a wider variety of mournful contingencies." Like Rogers, Burgess did not directly attribute these new dangers to humans, but he clearly saw in the example of the *Lexington* fire a new modern threat that potentially necessitated new responses. Even while warning against ignoring the hand of God, Burgess partially exempted steamboat accidents from the "inescapable" category, acknowledging that the public naturally would, and should, look to "human precautions."[36]

In his *Lexington* sermon, W. H. Furness referred quite strongly to the possibility that such disasters could be prevented. Like the other clergymen, Furness explained the event's clear divine significance: "it is as if the angels and ministers of God descended upon the wave, to remind us all of the solemn conditions upon which we exist." This was not, however, simply a reminder of God's power. Such disasters (and he noted their

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[35] Rogers, "Rev. Mr. Rogers's Sermon," 13.
[36] Burgess, "A Sermon, Delivered in Christ Church," 6-10.

frequency) could be prevented through each individual's effort to foster Christian morals in themselves and others. The *Lexington* fire, Furness said, was a direct result of a modern sensibility growing in its prominence and danger. Carelessness caused the fire, and carelessness resulted from "selfish principles," the "predominant springs of a large portion of our modern improvement." Furness questioned progress itself, fully aware that doing so had become near blasphemous in a society that so celebrated it. The advancement of civilization, according to the pastor, was moving too swiftly. Selfishness, greed, and recklessness had become hallmarks of the age, threatening the true Christian spirit, which was "always collected, sober, never hurried and impatient."[37]

In sermons responding to natural disasters, disease epidemics, and other catastrophes, American clergymen frequently attributed the tragedies in part to human actions. Creating moral lessons required ministers to connect human behavior to divine intervention. In their sermons, human and material causes were so-called second causes that helped explain the event alongside references to the first cause, God's extraordinary power.[38] Furness and others followed this tradition, but they also adapted it to the particular character of steam disasters, identifying new "second causes" based in modern circumstances. While calling shipwrecks and other tragedies natural and even expected, they associated steamboat accidents with modern technology and human advancement. These associations led many to view steam disasters with a skepticism about human vanity and overreach that had not been applied to earlier forms of transport.

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[37] Furness, "A Discourse Delivered on the Morning of the Lord's Day," 5; 11-15.
[38] Van De Wetering, "Moralizing in Puritan Natural Science," 420; 429. See also Coleman, "Rain Down Righteousness," 245.

Others went further, turning this broad skepticism into more specific, full-fledged critiques that looked to explain and prevent the events they still simultaneously called acts of God. Even John Stanford in his early, traditional treatment of the *Aetna* disaster acknowledged the mechanical and technological failures that surely caused the explosion, though he claimed no authority to speak on such matters.[39] Pastor Thomas Smyth of Charleston had no such objections. In his reflections on the loss of the steamboat *Home* in 1837, Smyth assigned blame without hesitation to the human operators of the vessel. The *Home*'s captain received the weight of Smyth's censure; the pastor suggested that the captain had been negligent and reckless, and he insinuated that drunkenness was the likely culprit. Smyth buoyed his own claims through the authority of witness testimony, specifically an account of the events prepared by a survivor, Mr. Hussey, and apparently approved by other surviving passengers. Hussey's account became Smyth's text, verifying the claims he had made in his sermon. Smyth argued that if the captain were to be proven guilty the condemnation of the entire community should come down upon him as well as any others found responsible. Smyth's screed ultimately had a Christian lesson, that the sins of "unbelief, of intemperance, of gambling, or their kindred vices" tend to pollute others as well as ourselves, and God will ultimately hold such sinners accountable.[40] Like Furness and Rogers, Smyth identified a widespread human sin for which God had delivered appropriate punishment, but he also traced the disaster to a specific person's failures.

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[39] Stanford, "Aetna," 11.

[40] Thomas Smyth, "The Voice of God in a Calamity: or, Reflections on the Loss of the Steam-Boat Home" Fourth Edition (Charleston: Jenkins & Hussey, 1837), 19; 23.

Smyth could justifiably claim some authority to so clearly assign blame; the pastor was himself a member of the Charleston committee that investigated the *Home* disaster, and his sermon blended the voices of pastor and investigator. When Smyth and his publishers reframed the sermon for print, it became even more detached from a traditional religious interpretation. It also became quite popular, with several editions finding publication. In published form, Smyth's discourse was no longer just a sermon but a pamphlet meant to serve as both "a record, as well as an improvement, of the disaster," a change the pastor justified through his uniquely privileged position. He added an appendix featuring a survivor's account and a list of the *Home*'s passengers, both the dead and survivors. Smyth lent empirical support to the sermon itself with footnotes expanding on stories alluded to in his verbal address, likely borrowing details from newspaper accounts or other witness testimony. Finally, Smyth provided introductory remarks describing the purpose of the sermon and the circumstances of its publication and reiterating his censure of the captain.[41]

Again, the identification of material second causes was a common aspect of religious interpretations of disaster, but traditional explanations were still always attributed to God's design. Steamboat and rail disasters made the human and material explanations difficult to ignore, however, and even religious leaders increasingly separated those explanations from the divine. What is striking about Smyth's publication is the way the author so quickly, and perhaps even unwittingly, moved between these modes. In his preface to the fourth edition, Smyth referred to the *Home* disaster as a "dispensation of Providence," and throughout the sermon, he followed the familiar

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[41] Smyth, "The Voice of God in a Calamity," 5; 23.

patterns of a divine interpretation. "Does not God speak to us from amid this whirlwind?" Smyth asked. The pastor called the sermon "nothing more than a commentary upon this dreadful disaster as its text, and an application of it to the heart," and yet it had clearly become something more. The clergyman hoped primarily to decipher the "hand writing which the finger of God has traced," but amidst the religious interpretation and the exploration of God's will, Smyth made human error and human operation of the boat central to the disaster's meaning.[42]

S. K. Lothrop's *Lexington* sermon similarly displays two incongruous voices. Lothrop connected the recent disaster to other events around the country; disease, fires, and storms were bringing massive destruction with frequency. He lyrically described the tragic fire that had taken the *Harold* at sea and then did the same for the *Lexington.* Then, Lothrop's tone shifted from sadness to indignation as he seized the opportunity to expound generally on steam transportation accidents, which he saw as a dire problem facing the country. Without hesitation, Lothrop explained that "gross recklessness or carelessness" had caused the *Lexington* disaster. His critiques were specific and pointed; the Steamboat Act passed by Congress in 1838 to improve safety had, in just two years, proven "feeble and inefficient." Every day, Lothrop noted, American public transportation exposed an "immense amount of life and property" to death and destruction. In Lothrop's account, the accident (among the long line of others) was itself sufficient evidence of a pervasive problem. This was a problem of human origin, and it demanded a human response. Lothrop called on the public to voice its displeasure and encourage stricter legislation from Congress; simply accepting this as a sorrowful tragedy

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[42] Smyth, "The Voice of God in a Calamity," 3-4; 11-12.

(as Lothrop implied was the norm) would be "false to our own interests and safety."

Then, at the end of his sermon, Lothrop pulled back to a familiar refrain: in the focus on

the "secondary cause" of the *Lexington* fire, he said, the public must not forget the "First

Cause." God permitted this disaster to happen, and it was above human power to

comprehend such mysteries. Instead, those affected must have faith in the designs of

Providence and "gather lessons of duty and instruction."[43]

The message of Lothrop's sermon shifted sharply as he moved between the

secondary and the "First" cause, and examined as a whole, the interpretation is

paradoxical. The *Lexington* fire was simultaneously an unacceptable act of human

recklessness and a "wise and gracious design."[44] It was an event beyond human

comprehension and also one with clear causes that called for deep social reflection and

decisive political action. These contradictions are symptomatic of the distinct challenge

that modern technological power posed to traditional religious explanations of death and

tragedy. A steamboat disaster or a railroad accident resembled other episodes of mass

destruction and allowed for religious reflection, but with the technology so closely linked

with human art and creation in the public mind, technological and human failure joined

explanations that pointed only to divine intervention.

The traditional interpretive blueprint received its most significant challenge in

pastor Orren Perkins's sermon on the 1854 *Arctic* steamship disaster. In explaining the

steamer's collision with another boat and its subsequent sinking, Perkins almost entirely

dismissed the idea of Providential design. Perkins's sermon begins like a standard

exposition on God's power evident in nature with a lament about the sea and its

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[43] Lothrop, "A Sermon, Preached at the Church in Brattle Square," 17-21.
[44] Lothrop, "A Sermon, Preached at the Church in Brattle Square," 21.

propensity to claim lives, but then Perkins shifted the narrative with a big question: were these disasters really all God's doing? Was it "fixed as the laws which rule the spheres" that so many would die aboard ships, the clergyman asked, or were humans to some extent responsible for the long series of disasters at sea and on rivers? The progress represented by steam technology made the death toll that much more appalling to Perkins. He referred to the explosion of the steamboat *Henry Clay* a few years earlier and to frequent dangers on the Collins and Cunard transatlantic lines, and said this pattern was particularly disturbing. "When men sailed in small vessels, at the mercy of wind and waves" occasional wrecks were understandable, but "when steamers float upon the seas, which fear not to face the tempest and battle with the storm" tragedy was more unexpected and jarring.[45]

Perkins's meditation on the role (or lack thereof) that God played in directing transportation disasters signals an interpretive shift due, at least in part, to the nature of the technology itself. The clergyman, giving his sermon in 1854, was familiar with a pattern of steam transport accidents that was reaching its peak. Still, Perkins found disasters like the *Arctic* collision shocking, and his sermon reveals the surprise of expectations unmet. There had been a time when the sea was dangerous, when sailors and Atlantic travelers necessarily conceded some control and security to the power of nature's elements. Perkins clearly considered that era over. Now humans had built "ocean palaces," and daily "plied a power which defies the fury of the elements." In an age where humans seemingly triumphed over nature, tragedy at sea just seemed out-dated. The fact that it still occurred was unnatural – out of nature's and God's order. Perkins

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[45] Perkins, "Lessons from the Sea," 4-5.

implicitly cast travel in his own time as an arena of human influence. His "Lessons of the Sea" still directed the audience to faith in God and Christian morality as the proper approach to life and death, but another lesson was there too: humans had created a problem and needed to solve it themselves.[46]

Perkins made his sermon on the *Arctic* a cultural critique; the impulse to explain away disasters through references to divine mystery had the consequence of denying human responsibility and preventing change. "We call such evils Providential Dispensations," Perkins said, but "be they so or not, they rarely occur where proper human care and forethought are observed." Human recklessness could not be overlooked, and exploring human causes led the clergyman to several culpable parties. Captains of steam vessels consistently displayed carelessness; owners encouraged such behavior in their drive to outpace rival lines; the press praised vessels for speed and not for safety; and the public was "ever ready to hazard all" in the name of progress. All parties involved shared in the creation of dangerous circumstances, and yet when disaster struck, Perkins noted, all "arise to theorise on the incrutable [sic] Providences of God."[47] Perkins's critique has echoes in newspaper editorials addressing the problem from a secular perspective; two *Harper's Weekly* articles in 1871 argued against the narrative that disasters were a visitation of Providence, as it distracted from the real problem at hand.[48]

By contrast, F. Reck Harbaugh's 1855 discourse on the Burlington rail disaster suggests how deeply rooted older religious interpretations still were. "Calamity and

[46] Perkins, "Lessons from the Sea," 4.
[47] Perkins, "Lessons from the Sea," 4-6.
[48] *Harper's Weekly,* September 9, 1871; September 16, 1871.

catastrophe such as has astounded us, are the evidences of His displeasure," Harbaugh claimed. The pastor identified the hand of God in every aspect: "His eye was upon the train at the moment of its ruin. His providence directed every splinter. His wisdom checked every wheel." Harbaugh's sermon is surprisingly insular and neglects the national context; at a time when significant rail disasters were not infrequent, he emphasized the "*uncommonness* of the disaster" as its distinctive feature and said "no catastrophe ever was more unlooked for and unexpected." The local orientation of his message perhaps explains Harbaugh's interpretation. Rather than fit the Burlington disaster into a national pattern of public calamities, he was interested in the divine message held in the "*locality* as well as the *manner*" of the wreck, a message specifically intended for the affected community. This particular disaster occurred as it did for a reason, he argued, and the congregation should look inward for reform.[49]

Harbaugh's sermon is clearly set up as a counter to the discussions going on in the press about culpability and criminal recklessness. The pastor understood the need to evaluate and reform "regulations and restrictions in the manner of running trains" to prevent recurrence of events like the Burlington wreck, but he also saw the importance of deeper reflection. "To regard this visitation as nothing more than a theme for talk, disputation, and wonder… to clamor for the punishment of the culpable, for alterations in present regulations… the visitation of that displeasure is not because of these," Harbaugh said.[50] Here was the traditional disaster interpretation employed again, but now confined to a local spiritual matter removed from the national conversation.

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[49] Harbaugh, "The Burlington Disaster," 17.
[50] Harbaugh, "The Burlington Disaster," 6; 11-13; 17.

Together, Perkins's and Harbaugh's sermons suggest the way that traditional Christian interpretations of tragedy and the national discourse about steam disasters diverged. Perkins argued that older narratives that labeled disasters as inexorable visitations from God prevented full assessments of the particular threat posed by steam-powered transportation; Harbaugh felt that such investigations of technological dangers distracted from needed religious reflection. Responses to transport disasters that focused on divine intervention were not going away, and religion of course continued to shape how Americans understood death. An 1871 published tribute to George S. Benedict, a victim of a train accident, included numerous letters written in consolation to Benedict's parents that are filled with statements about divine will and declarations of faith in God despite hardship.[51] Faith in God also certainly directed many Americans' attitudes about danger; an 1876 print by J. R. Vail called "Gods Protection Over His People" quotes scripture and depicts a host of angels descending from the heavens to fight away hellish demons bent on derailing passenger-filled trains.[52] Religious narratives continued, but they became increasingly removed from the dominant discourses surrounding technological danger, and though faith provided comfort, Americans looked elsewhere for answers and solutions to a disturbing human problem.

Religious leaders were not the only ones interpreting steam disasters and drawing out their lessons for the American public. Even before ministers delivered their sermons, their audiences had likely learned the particulars of the tragedy from newspaper reports. The ministers themselves relied on these reports in framing their narratives, and the

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[51] Pamphlet, "George S. Benedict," (1871), AAS.
[52] Print, J. R. Vail, "God's Protection Over His People," (Clinton, Connecticut: J. R. Vail, 1876), AAS.

disaster's details similarly became the basis for other writers' interpretations. Like religious leaders, these writers recognized the potential influence of disaster stories, and they crafted moralizing narratives that cast the disasters in familiar terms. Once translated into narrative form, steam disasters became stories with characters audiences could recognize and either admire or admonish. Over time steam disaster narratives became a patterned genre with stock characters and lessons readers could easily relate to. Episodes where humans interacted with steam technology and its associated dangers often reinforced core values of the emerging American middle class, including self-restraint and behavior according to separate, prescribed gender norms, while also instructing Americans about the proper way to approach modern transportation and technology.[53]

Newspaper stories began this process, but the greatest displays of the genre are two published collections of disaster narratives, S. A. Howland's *Steamboat Disasters and Railroad Accidents in the United States,* first published in 1840, and James T. Lloyd's 1856 *Lloyd's Steamboat Directory.* Both Howland and Lloyd drew from numerous (often unattributed) sources; they recopied newspaper descriptions and significant sections of coroner's inquests and quoted at length many of the popular disaster sermons. Though it is often difficult to detect what material is original, both also added commentary of their own, as Howland said, to give the work "moral influence."[54] The individual narratives helped explain and make sense of horrible tragedies for readers, and as a whole, these "disaster books" served as extended guides to the dangerous circumstances modern transportation could present.

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[53] For more on the nineteenth-century American middle class, see Stuart M. Blumin, *The Emergence of the Middle Class: Social Experience in the American City, 1760-1900* (New York: Cambridge University Press, 1989).

[54] Howland, *Steamboat Disasters,* viii.

As Howland and Lloyd clearly observed, steamboat and train disasters lent themselves to moralizing interpretations because of the diversity of figures involved and the extremity of the situations they found themselves in. Like published sermons, disaster narratives often included a survey of the various types aboard the vessel: on the *Lexington,* for example, "there was the husband of a devoted wife, and the father of seven daughters… there was the young bride… There were the mothers to whom offspring clung for safety with all the confidence and hope of childhood." As forms of transportation serving a diverse public, a steamboat or a train was "a world in miniature." "Let us look in upon them," Howland's account encouraged readers; "the passions and purposes of the human bosom are at work, and even in this thoroughfare, we may read something of human character." Tragedy revealed "the hopes and fears, the love and hate, the ambition and despair, the mirth and sorrow of the millions of our race," and if it did not do so clearly enough, those interpreting the event were there to make sure it did. In their retelling, disasters included characters that reinforced a set of ideal qualities through their various heroic or cowardly behaviors.[55]

The most obvious heroes and villains were the operators of the steamboats or trains. One of the effects of human-centric explanations for steam disasters was that captains and other employees became the focus of praise or blame, leading to assessments of their strong or weak moral character. Just as pastor Thomas Smyth found fault with the *Home*'s captain, disaster narratives exposed the evil or cowardly actions that had caused the accidents or made them worse. Examples of such behavior were plentiful: an account of the 1836 *Royal Tar* steamboat explosion told of a prideful

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[55] Howland, *Steamboat Disasters,* 201-204.

engineer who claimed that "he knew his own business best" and ignored the pilot's warning about low water in the boiler just minutes before it exploded.[56] On the steamboat *Ben Sherrod* the crew was reportedly drunk, and later when the boat was burning the deck hands "basely left their posts and ran for the yawl, without giving the alarm to the passengers."[57] The story of the *Ben Sherrod* provided even better villains in the captains of nearby boats that failed to assist the drowning victims. Captain Littleton of the steamer *Alton* had supposedly driven his boat through the wreckage and dangerously past "exhausted sufferers" in the water, "turning a deaf ear to the cries and pleadings of all."[58] The captain of the steamer *Prairie* also passed by offering no assistance, and was called a "monster" in Lloyd's account.[59]

Disaster narratives juxtaposed such horrible actions with stories of captains and employees bravely sacrificing self-interest for others. Howland and Lloyd praised heroic figures like Captain Holmes of the steamboat *Clarksville,* who saved his wife and other passengers "in the honorable discharge of his duty," and "Poor Davis," the pilot of the steamer *Ben Sherrod* who burned to death, "preferring to die rather than leave his post in the hour of danger." Lloyd used Davis as an example of many others who "perished rather than flinch from their duty."[60] The quintessential hero emerged from the burning of the *Phoenix* on Lake Champlain in September 1819. The boat's regular captain had been ill, so his son of only twenty-two years took charge of the boat that night. Captain Sherman was thus an unlikely hero, making the story even more magnificent. Howland's

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[56] Howland, *Steamboat Disasters,* 91.
[57] Lloyd, *Lloyd's Steamboat Directory,* 97.
[58] Howland, *Steamboat Disasters,* 98.
[59] Lloyd, *Lloyd's Steamboat Directory,* 98.
[60] Lloyd, *Lloyd's Steamboat Directory,* 171; 101.

account described how the young Captain Sherman's cool head and refusal to leave the ship before others were safely off, qualities rarely found "even among those of riper years," ensured that no lives were lost. Howland included the remarks of an observer of the similar *Lexington* fire who referred back to Sherman to highlight the effects of strong character. Printed in Howland's collection among other narratives of disasters that occurred decades later and featured significant loss of life, the story of this victimless fire stands out – present, it seems, only to reveal "one of the most heroic acts on record."[61]

Heroes and villains were present among the passengers as well. In the aftermath of the *Ben Sherrod* disaster (an event apparently full of evil figures), a nearby man in a canoe passed through the floating passengers picking up items from the wreckage and refusing aid to anyone unless they promised payment. According to Lloyd's account, when one Mr. Cook hailed the man from the water and asked for help, the "wretched and despicable character" dismissed Cook, leaving him to fend for himself in the water.[62] Such nameless villains were often the best examples of treachery, and their immoral actions may have been exaggerated or invented. Once again these stories were countered by tales of brave deeds. Stories of the 1838 *Pulaski* disaster praised a Mr. Couper for rescuing Mrs. Nightingale and an infant from the water. They also relayed the story of Mr. Ridge saving Miss Onslow from certain death. Howland included the detail that the two fell in love and Miss Onslow turned out to have a huge fortune, as if to demonstrate the potential reward for self-sacrificing bravery.[63]

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[61] Howland, *Steamboat Disasters,* 151-154.
[62] Lloyd, *Lloyd's Steamboat Directory,* 101.
[63] Howland, *Steamboat Disasters,* 208.

Stories like Mr. Ridge and Miss Onslow's suggest that the good or bad qualities

that designated who was heroic or depraved were often inseparable from gendered

expectations about proper behavior that were becoming part of dominant middle-class

cultural norms.[64] Ridge exemplified bravery and self-sacrifice, but perhaps demonstrated

an even more significant manly ideal admitting to Onslow that his fortune had been lost

in the disaster and he would not be able to support her.[65] Exemplary manhood was made

apparent in disaster sermons too – Lothrop said that "if ever any situation required

manhood… it must have been this;" Perkins questioned the "unmanly" behavior of those

who deserted the sufferers and thought only of their own security; Harbaugh wondered

"what kind of principle of manliness" it was to offer aid and respect to a dying enemy

"and yet withhold both from a *living* enemy?"[66] In disaster narratives throughout

Howland's and Lloyd's books, the bravest deeds often involved men taking care of

suffering women or facing their own potential death without fear. An account of a

collision on the Portsmouth and Roanoke Railroad mentioned two female victims, both

soon to be married: "The accepted of one of them was by her side when the death blow

came upon her, and he could have escaped unhurt by leaping from the car, which he

refused to do unless he could save her."[67]

The middle-class manly ideal is best seen in the figure of Major Heath, a survivor

of the *Pulaski* disaster, who stands out as the hero of Howland's account. Heath found

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[64] See Halttunnen, *Confidence Men and Painted Women.*

[65] Gail Bederman writes that middle-class men were encouraged to delay marriage until they could adequately provide economically for their families. Gail Bederman, *Manliness & Civilization: A Cultural History of Gender and Race in the United States, 1880-1917* (Chicago: University of Chicago Press, 1995), 12

[66] Lothrop, "A Sermon, Delivered at the Church in Brattle Square," 12; Perkins, "Lessons from the Sea," 7; Harbaugh, "The Burlington Disaster," 13.

[67] Howland, *Steamboat Disasters,* 241.

himself aboard a floating piece of wreckage along with twenty-two other survivors for several days. The major arose as a natural leader, keeping his fellow survivors safe and refusing to risk any lives. When others considered the potential necessity of casting lots and sustaining themselves on one of their fellow survivors, Heath dismissed the idea and offered a portrait of Christian manhood. "We are Christians," Heath reminded his companions, urging them to cling to life and "manliness." "We have all our thoughts about us, and should face death… with the spirit that becomes us as Christian men." Heath then vowed to lay down his life for the safety of his companions if necessary. Major Heath supplied his own testimony for his actions, so exaggeration is likely, but in the printed record of the disaster he became the model of manly self-control and bravery in the face of crisis.[68]

Writers revealed clear expectations for women's actions as well. As other scholars have contended, nineteenth-century vessels of public transportation, both steamboats and trains, became prototypical modern spaces where new social constructions of gendered behavior, particularly for women, were worked out.[69] Disasters created extreme scenarios where those norms could be performed. Narratives often included references to women panicking and needing rescue, so when they behaved otherwise it was noteworthy. Howland quoted the account of a passenger aboard the steamboat *Helen McGregor* who was careful to note that "in this scene of terror, the ladies exhibited a degree of firmness worthy of all praise." Although Mrs. Nightingale of the *Pulaski* owed hers and her infant

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[68] Howland, *Steamboat Disasters,* 54.
[69] See, for example, Amy G. Richter, *Home on the Rails: Women, the Railroads, and the Rise of Public Domesticity* (Chapel Hill: University of North Carolina Press, 2005) and Patricia Cline Cohen, "Safety and Danger: Women on American Public Transport, 1750-1850" in *Gendered Domains: Rethinking Public and Private in Women's History,* eds. Dorothy O. Helly and Susan M. Reverby (Ithaca: Cornell University Press, 2012).

child's life "to the coolness, intrepidity, and firmness of Mr. Couper and his assistants," she and another woman received praise for seconding those efforts and displaying "the highest qualities of fortitude and heroism." Typically, the most heroic female figures were mothers who showed the willingness to sacrifice all for their children. Howland's *Lexington* narrative provided an extended sketch of motherly love based on a recorded fact that a lady's veil was found wrapped around the body of a dead child. From this detail, the writer imagined an entire scene of a nameless mother retreating from the fire, her heart "centered on her child," masking the child's face with the veil in an effort to keep out the flames. "For herself she had not a thought," the writer went on, and while the weak screamed and ran in terror her only concern was shielding her child from harm. This story typifies the way disaster narratives turned even insignificant details into lasting moral lessons. In this case, the writer urged readers to recall their obligations to their mothers, "that to her thou art *still* a child." The writer closed the story telling readers, if they grew impatient with their mothers, "think of the burned threads of the gauze veil."[70]

Many readers probably did remember this touching story and its moral lesson, and this was precisely the intention of those retelling steam disaster stories to the public. Creating disaster narratives involved some level of invention, as Howland demonstrated with the story of the gauze veil. Writers seized on captivating moments and images, and like illustrators who depicted these moments in visual form, they made those moments symbols of the disaster's lasting significance. Tragedy had long offered moral lessons, and by transforming particular tragedies into instructive stories writers made the events meaningful within a broader set of values and morals embedded in nineteenth-century

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[70] Howland, *Steamboat Disasters,* 132; 51; 206-208.

American culture. Steam disaster stories were particularly effective, however, not only because of their intensity, but even more because they presented readers with so many relatable figures. This was the nature of modern, public transportation; steamboats and trains were "worlds in miniature" because they often carried travelers of all kinds, meaning nearly all readers could connect to these scenarios. As writers turned disaster victims from anonymous individuals into recognizable types, those empathic connections grew easier. One can imagine the interested reader putting down the newspaper and thinking – what would I have done?

Some people would even find out. H. A. Kidd, editor of the *New Orleans Crescent,* survived an 1850 explosion on the steamboat *Anglo-Norman* in the New Orleans harbor, and went on to write an account – "The Experience of a Blown-up Man." In it Kidd described being suddenly lifted into the air and thrown into the water, but there he swam "with greater ease" than he had ever before, and when another steamer approached the passengers in the water, scaring others, he "had no fears… and made no effort to get out of its way."[71] With his own written record joining so many similar others, Kidd transformed himself from observer to victim, placing himself among the ranks of others who had bravely faced great peril. Like the artists for *Frank Leslie's Illustrated Newspaper* who visited disaster scenes and interpreted them for the public, Kidd positioned himself as a link between victims and readers, most of whom would remain distanced from the real danger.

Kidd's account recalls the literary tradition of Romantic-era travel writing in which travelers expounded upon their sufferings to gain credibility as travelers and

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[71] Lloyd, *Lloyd's Steamboat Directory,* 191-193.

adventurers. Particularly in an era when travel was so circumstantially dangerous, Carl

Thompson writes, narratives framed travel as a performative act, and writers attempted to

"shape both the experience and the self so that they fit a desired paradigm or template."[72]

The spatial and technological conquest of modern transportation had seemed to eliminate

many of the dangers that had plagued earlier travel and therefore precluded opportunities

for travel to become a performance of the Romantic self. By halting spatial conquest and

the smooth transition from origin to destination, however, disasters brought back this

performative element, exemplified here by Kidd. As a writer, Kidd used his experience to

verify his own character in print; writers had made the moments of crisis in a steamboat

disaster a test of manhood, and in his own estimation Kidd lived up to the ideal of

fearlessness and bravery in the face of danger.

H. A. Kidd's experience with the *Anglo-Norman* suggests how steam disasters

stories spoke not only to general values but also prescribed proper behavior for uniquely

modern circumstances. As these stories piled up, enough to fill books like Howland's and

Lloyd's and more, they collectively offered a guide to steam transportation and its

associated dangers and a set of lessons that could theoretically be applied to any such

incident. Those lessons started early. Howland published a version of his disaster volume

for young children which included significantly abridged tales of three disasters complete

with miniature engravings.[73] But with the blueprint of transportation dangers and

disasters well-established, it was also easily transferred to fiction. Children's books,

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[72] Carl Thompson, *The Suffering Traveller and the Romantic Imagination* (New York: Oxford University Press, 2007), 7-8. For a sociological exploration of travel as performance, see Judith Adler, "Travel as Performed Art," *American Journal of Sociology* 94, 6 (1989): 1366-1391.

[73] S. A. Howland, *Disasters by Steam, Fire, and Water* (Dorr, Howland & Co., 1839-1842), AAS.

drawing on familiar stories of steamboat and train disasters, extended the lessons of modern transportation to young readers. *Rollo's Travels* was a multi-chapter volume and one of a series of "Rollo" books written by Jacob Abbott in the 1830s and 1840s and published in several editions over the course of the century. The series, which included titles like *Rollo Learning to Read, Rollo at Work,* and *Rollo at School,* was intended to provide educational and moralistic learning in a form appealing for young readers. Abbott included a preface in *Rollo's Travels* informing parents that although moral instruction would not be direct, the book and its main character would "exert a considerable influence, of a salutary character, upon the mind of a child."[74] The note likely worked – one surviving volume bears an inscription marking the book as a mother's gift to her son in 1849.[75] Rollo, the fictional boy at the center of the series, served as a young reader's companion, moving through the process of growing up and navigating his surroundings, all the while modeling "docility and gentleness."[76] *Travels* is not driven by any substantial plot, instead Rollo simply embarks on a fairly mundane steamboat journey, learning as he goes from his parents and others about the workings of the steamboat, and, more significantly, the proper behavior of a traveler, all lessons that mirrored those being taught to American adults through disaster narratives.

The lessons Rollo learns are numerous, but one primary rule for travel appears at the beginning of the book, voiced by Rollo's father, Mr. Holiday, as he gives the boy "general orders" aboard the vessel: "always keep a quiet mind." Mr. Holiday stresses the value of self-restraint: "travellers break this rule by fretting and worrying themselves,"

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[74] Jacob Abbott, "Preface" in *Rollo's Travels* (Philadelphia: Hogan & Thompson, 1845)*, AAS.
[75] The inscription is in the copy housed at the American Antiquarian Society.
[76] Abbott, "Preface" in *Rollo's Travels.*

the father tells his son, especially in regards to three things. First, travelers were always

worried about time. Bad travelers were eager to "get along faster than we are going" and

constantly inquired about arrival time and urged greater speeds.[77] Mr. Holiday

encourages Rollo instead to "give [himself] up to the pleasures of the present hour." Mr.

Holiday also warns Rollo about the hardships and inconveniences of any journey and

stresses patience and self-control. Finally, travelers fretted about danger. "You must

avoid that," Rollo's father says, "do not let your imagination run upon dangers and

disasters." Mr. Holiday then explains that older passengers were generally more guilty of

this and offers a profile of the offending type:

> Some whom I have known are always apprehending some accident or trouble;
> picturing it to themselves, as they ride along, upsettings in coaches, or explosions
> in steamboats, or running off the track in the cars. They are always looking out at
> the window in search of hills or steep banks, or listening to the clanking of the
> engine, to hear if something is not going wrong.

"Banish all these things from your mind," Mr. Holiday urges his son, or at the very least,

"never talk about them." Even if one's imagination was prone to straying to such ideas –

Rollo's mother expresses her own difficulty avoiding such thoughts – self-discipline and

steady practice would eventually train the mind not to do so.[78]

Throughout the journey, Rollo's father repeatedly demonstrates proper traveling

behavior. While on the main deck, Rollo hears a "sudden burst" and sees steam floating

up from the side of the boat. Thinking that the boiler has exploded, Rollo runs to his

father but finds relief when Mr. Holiday, sitting calmly, tells him the boiler was just

letting off steam. Another night the engine stops and a concerned Rollo asks if they

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[77] This concern about time and eagerness for speed reflected a broad cultural concern provoked by
steamboat and rail disasters, discussed in Chapter Five.
[78] Abbott, *Rollo's Travels,* 11-12.

should go inquire. His father replies, "our wisest course is to lie quiet" and wait for further notice. Targeted at a younger audience but applicable to others, *Rollo's Travels* reassures readers, or more appropriately, would-be passengers, that they are safe and in good hands aboard steamboats and trains. Rollo becomes familiar with the technology itself – Abbott spends several pages detailing, in straightforward terminology relayed through the voice of Mr. Holiday, the mechanics of a steamboat – and then his father says to leave "the boiler to the engineers and firemen." Rollo's father, and by extension Jacob Abbott, looked to allay fears by inspiring confidence in both the technology and its operators. In this way, Abbott suggests a particular version of middle-class self-restraint fitted to modern technology and transportation; ideal travelers were aware of the technology but they relied on others for its operation.[79]

That overcoming fear of danger aboard steam transportation becomes a primary lesson for Rollo hints at the effects of repeated disasters and public awareness of them. Fearful behavior and anxious thoughts, like Mr. Holiday described, were not uncommon. No matter how reassuring voices like Mr. Holiday's were, the public attention given to disasters meant that travelers inevitably remained, much like Rollo, aware of their potential to occur unexpectedly. A person's behavior in such an environment, where consciousness of potential danger was high but actual risk of disaster was low, became revealing of particular character traits. As Mr. Holiday acknowledges, steamboats and trains were places where avoiding fear was difficult, but because it was difficult, learning to do so was an excellent marker of self discipline and control.

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[79] Abbott, *Rollo's Travels,* 75; 99; 79-85; 12.

Another popular children's author, William Taylor Adams, wrote under the pseudonym Oliver Optic and published dozens of books in the 1860s and 1870s, including many using steam travel as a setting and theme. Optic highlighted moral lessons even more directly than Abbott, often titling his books with some idiomatic phrase that was then proven valuable throughout the story. Optic's books typically formed series with common characters; the stories are more plot-driven and directed to a slightly older audience than the Rollo books, using primarily adolescent or young adult protagonists to model the central lesson while others demonstrate the consequences of poor character.

Haste and Waste or *The young pilot of Lake Champlain* was the final volume of Optic's "Woodville" series, six independent volumes connected by shared characters and the Woodville setting. *Haste and Waste* follows the exploits of fourteen-year-old Lawry Wilford, who, Optic writes, "overcomes difficulties by a strong faith in himself, and redeems his family from poverty, in spite of the bad example and the bad conduct of his father and his older brother." Lawry exemplifies good moral character throughout the book, as when he challenges his father to be honest after he learns his father has stolen six thousand dollars from another man's jacket. The boy's most important lessons, however, come when he is learning his craft as the pilot, and later the captain of a miniature Lake Champlain steamer called the *Woodville.* The young pilot faces a number of dangerous situations aboard the *Woodville*, and through them he learns and exemplifies the title lesson – "haste and waste."[80]

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[80] Oliver Optic, "Preface," in *Haste and Waste; or, The Young Pilot of Lake Champlain* (Boston: Lee and Shepard, 1867).

Lawry's first test comes early in the book when the boat's owner, Mr. Sherwood, pilots the *Woodville* and its small group of passengers across the lake, unaware he is headed straight for a dangerous rocky section. Lawry, not aboard the boat, recognizes the danger and rows out near the boat to signal Sherwood of the impending rocks. Sherwood misinterprets Lawry's signal and crashes the boat into the rocks, and the *Woodville* quickly sinks, leaving its owner and passengers scrambling in the water. At this moment, Lawry reveals his courage; "The young pilot did not pause an instant to contemplate the scene of destruction. He saw only the helpless persons struggling for life in the water." Upon reaching the wreck Lawry immediately dives into the lake, rescuing several of the passengers. Lawry receives recognition, "never was a young man more earnestly and sincerely thanked," and Sherwood even offers him a monetary reward, which the selfless Lawry of course turns down. Sherwood instead gives him valuable advice. Admitting that his impatience to run the boat nearly cost the lives of his wife and friends, Sherwood warns Lawry against haste, "if you are going to be a steamboat man," Sherwood tells Lawry, "let me give you this maxim for your government – 'Haste and Waste.'"[81]

Sherwood's wife Bertha (the star of the first Woodville book) then confirms the maxim, and in the process, draws on lessons from an actual disaster – the 1854 collision of the *Arctic* at sea. Bertha tells Lawry that her father has often spoken of "the folly of unconsidered action and blind haste," especially after he lost a friend "in the steamship Arctic, which was sunk, and hundreds of lives sacrificed, by running at full speed in a dense fog." In the case of the *Arctic,* Bertha said, "haste was not only a terrible waste of

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[81] Optic, *Haste and Waste,* 66; 69; 75.

property, but of life."[82] Bertha's reference to the 1854 *Arctic* disaster is enlightening as to the diffusion of disaster narratives. Adams, the author, had surely read news coverage of the disaster. He may have even read Orren Perkins's published sermon on the disaster; Bertha's summary certainly mirrors Perkins's critique of human recklessness. Young readers of *Haste and Waste* would have had little or no personal memory of the event, but it is easy to imagine them hearing of it from parents, much as Lawry hears of the disaster from Bertha Sherwood. In this intersection of the fictional and the real, the character Bertha Sherwood alludes to a disaster embedded in American public memory and then reenacts the moralizing process that followed the *Arctic* disaster and others as she and Mr. Sherwood instruct Lawry on the character traits that would have saved the *Woodville*.

Later in the book, Lawry's character and his new maxim are fully realized. After seeing the *Woodville* restored, Lawry becomes the boat's captain. Notably, at the time of the wreck Sherwood had vowed to have nothing more to do with the boat, but Lawry's skill and good character later convince him, along with many ladies who had been in the original accident, to overcome their terror and ride in the *Woodville* again. The story concludes with one final demonstration of the central lesson. Lawry is now running the *Woodville* on a regular excursion route, and is scheduled to take out a party of businessmen. Due to a dark, foggy night (much like the *Arctic* faced) Lawry decides to delay the start and wait for safer conditions. The passengers insist on departing (embodying the "bad traveler" of *Rollo's Travels*) and question their young captain's competence. After another boat departs into the fog, the passengers grow even more impatient: "The other steamer has gone, and if she can run, you can, if you know your

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[82] Optic, *Haste and Waste,* 77.

business," one man says. Lawry nevertheless stays firm in his decision. When they are finally off, the *Woodville* catches the other boat, only to find it run aground. The passengers admit their error and Lawry once more repeats his motto – "Haste and Waste."[83]

In another Optic novel, *Brake Up,* a Colonel Wimpleton builds a steamboat line across a lake to compete with a nearby railroad. The story, told by the steamboat captain Wolf Penniman, follows the rivalry of the rail line, controlled by the Toppleton family, and Wimpleton's steamboat line, which eventually results in the union of the two companies for what all determine to be the better for the traveling public. The major moral lesson is provided through the character of Colonel Wimpleton, a frequent drinker whose drunkenness is becoming more extreme and problematic as the story begins. Wimpleton's drunkenness causes numerous challenges for himself and other characters, but by the end of the story, the colonel resolves to stop drinking, a reform that aligns with the successful union of companies. Again, Adams provides in the title a maxim to embody the lessons of the story, in this case, "brake up." As the author writes in the book's preface, "brake up" is a railroad phrase that here "figuratively indicates how the wrongdoer should proceed when he becomes conscious of his error." Colonel Wimpleton's reform of his drinking habits leads to the final statement of the book: "When you find yourself indulging as he did in a bad habit, when you find your course of life is wrong in any respect, do as he did – 'BRAKE UP.'"[84]

Adams therefore builds his story's primary lesson through a transportation metaphor, using the idea of a train disaster to explore the potential costs of an immoral

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[83] Optic, *Haste and Waste,* 191-192; 310-312.
[84] Oliver Optic, *Brake Up; or, The Young Peacemakers* (Boston: Lee and Shepard, 1870)*,* 6; 303.

life. He plays with this metaphor in the preface, urging readers young and old to follow

Wimpleton's example when they "find themselves on the 'wrong track.'" With an

audience well familiar with steam transportation accidents, the language and outlines of a

train wreck were an easily intelligible framework through which Adams could

communicate notions of good and bad character. It also likely helped that the concept

was not entirely metaphorical. Early in the novel, Wolf Penniman is riding on a train with

an intoxicated Colonel Wimpleton when the train stops abruptly. Penniman inquires and

learns that a cow is blocking the tracks, but when he returns to his car he finds

Wimpleton gone. Fearing the worst, Penniman convinces the conductor to slow the train,

then hears the whistle to "brake up" and the train screeches to a halt. Colonel Wimpleton

had somehow ended up on the tracks and was almost run over. Here the book's extended

metaphorical device is played out in front of readers, aided by accompanying engravings.

But, as in *Haste and Waste* and other texts, the actual near disaster, along with other

transportation incidents in the book, reveals to observers clear examples of proper

behavior. Wolf Penniman, with a clear head, saves Colonel Wimpleton's life, while

Wimpleton endangers his own and others' with his drunkenness.[85] Danger and

transportation served Adams both as a figurative and literal arena wherein he could

explore and explain morality in the modern United States.

     Children's books like *Rollo's Travels* or the Oliver Optic stories suggest the

extent to which the lessons of steam disasters became part of a recipe for modern living.

Interpretations of the dangerous incidences of steam transportation, in the form of

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[85] Optic, *Brake Up,* 6; 29-30.

sermons, embellished retellings of disasters, or children's stories, made up a remarkably extensive body of literature that was constantly growing and increasingly self-referential. Sermons relied on detailed newspaper reports and the small but significant moments highlighted by disaster narratives. On their own or in collections like Howland's and Lloyd's, disaster narratives referred to popular sermons, borrowing lines and further enshrining their messages into the meaning of the event. In fictional children's stories, descriptions of invented disasters mirrored the real ones that were so prevalent. Collectively these texts constituted a genre with established patterns and recurring themes that helped construct an emergent cultural framework of shared understandings about the meaning of steam disasters and how one should live in the modern world.

By retelling disaster stories and illustrating their lessons for the American public, the authors of these texts helped make the always shocking and remarkable steamboat and train disasters normal and intelligible. In one form or another, Americans were likely to come across these stories, and from the time they were children the stories prepared them for a world where such dangers existed – readers grew familiar with the nature of steam disasters, what those disasters meant, and even how they ought to behave if faced with such a scenario. Most of course would never find themselves involved in a steamboat explosion or a train crash, but they could imagine it, which made steam disasters a useful tool through which Americans could explore modern values and condition themselves to the realities of the modern world.

The ability to imagine transportation disasters was aided by the fact that the distance between readers and victims was not very large to begin with, which writers and ministers consistently pointed out. With a technique frequently used by other religious

leaders, Thomas Smyth encouraged his congregation to imagine the scene of the *Home* disaster from the victim's perspective: "We can accompany them as they cheerfully endured all the trials of their way… We can enter into their fears… We can sympathise with their distress… We can weep with them, when they remembered home, and children, and friends, and felt that they were theirs, probably, no more." Smyth was encouraging public sympathy for the dead, but he was also in a unique position to illustrate this scene for his audience, as he and his family were in fact survivors of an earlier shipwreck.[86] Smyth could literally identify with those who suffered on the *Home*, and he hoped to build a similar link between the victims and his audience. Echoing the warnings of early death prevalent in sermons, Howland's account of the *Lexington* broke through the wall separating reader and victim: "No one has a right to be indifferent and unconcerned because the disaster has not come near him. Let such an one remember, that there is danger, and that among the next victims may be reckoned his own father, brother, sister, or child."[87]

Traditional Christian warnings that "in the midst of life we are at death" and "death comes equally to all" were common after all kinds of tragedy, but in the context of steamboat and rail disasters the words meant something different. The lessons of steam disasters were especially powerful because of the nature of modern transportation. As steam-powered transport served an ever-broader swath of the population and the reading public became ever more in touch with the circumstances the technology had created, the shock of disaster hit closer to home. Americans were not reading about distant, bizarre tragedies; they were becoming acquainted with a new reality in their own lives. Every

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[86] Smyth, "The Voice of God in a Calamity," 9.
[87] Howland, *Steamboat Disasters,* 202.

person who lived with these machines and chose to use them knew intimately of their

destructive potential. This was probably the most significant lesson of all: that despite

their diversity Americans shared something – not just that they as children of God all

faced death equally, but that they were all travelers, and were therefore subject to the

same dangers that had so viciously claimed the lives of the people they mourned.

The various texts produced in the aftermath of steamboat and rail disasters were

gradually defining a significant aspect of what it meant to be a modern traveler: the

subjection to potentially catastrophic danger. Realizing that modern identity required a

significant discursive transition that morally instructive texts reveal; in their responses to

steamboat and rail disasters Americans moved away from the mentality that these

tragedies were Providential visitations and opportunities for spiritual reflection in favor

of interpretations that articulated a new set of modern conditions created in part by steam

technology. Tragedies of steam transportation increasingly required thoughtful reflection

and public conversation, less about humanity's relationship to God and more about the

implications of humanity's advancement into a modern age.

Chapter Five:
The Consequences of Speed

Some boats are fast and others slow,
Stern wheel boats on the Ohio,
With five feet scant on all the bars,
This boat can beat the Rail Road Cars;
Oh! Now's the time for a bully trip,
Then shake her up and let her rip.

These lines come from the first verse of an 1856 song, "Mississippi Boat Race."

The tune is upbeat and fast-paced, a perfect fit for its subject – a steamboat race. The

song is written from the perspective of those on board, either passengers or crew. They

praise the boat's extraordinary quickness, claiming it rivals trains and then, calling for a

"bully trip," demand that the engines be fired up and the boat let loose to reach its highest

speeds. Later verses echo the excitement of the first and continue to boast the boat's

power, placing it in the context of other technological innovations: "telegraph wires are

much too slow, When safety valves are tied below." This reference to a tied safety valve

hints at various techniques captains and engineers sometimes used to drive steam to

extreme levels. The potential consequence is there too, at the end of the second verse:

"On board we've wood and grease enough, To win the race or blow her up."[1]

The surviving sheet music bears no signature, but a note at the top, "By Our

Pilot," suggests "Mississippi Boat Race" may have actually been written by the crew of a

particular boat or the passengers on board a racing steamer. It is easy to imagine

passengers of other boats knowing and singing the song while on board. If it were 1856,

the year the song came out, passengers on the same boat may have been reading from the

recently published *Lloyd's Steamboat Directory.* The book served as a guide for travelers,

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[1] Sheet Music, "Mississippi Boat Race" (St. Louis: H. Pilcher & Sons, 1856), Jay T. Last Sheet Music
Collection, Huntington Library.

with maps of western river systems and profiles of port cities, but disaster stories filled most of the pages. Passengers reading the book flipped through one description of destruction after another and read criticisms of the reckless speeds and excessive strain placed on engines that had led to disaster. After perusing the details of an 1852 explosion on the *Saluda* and a deadly collision between the *Sultana* and *Maria* in 1846, readers turned the page and found lists of the fastest trips ever made on the western rivers and celebratory statements about the record-setting boat.[2]

"Mississippi Boat Race" and these few pages of *Lloyd's Steamboat Directory* are quintessential products of the nineteenth-century cultural environment manifested by modern transportation and speed – its most defining feature. On the one hand, they reveal the popular enthusiasm for high-speed travel made possible by steamboats and trains in the nineteenth-century United States. The jump in potential speeds provided by steam-powered transportation facilitated the abridgement of the country's vast spaces and, for many, symbolically marked the progress of the United States into a new, modern age. As the technology and infrastructure improved, the speed of travel consistently increased, and steamboat and train companies, captains and crews, and passengers all enjoyed the benefits of a faster, more mobile reality. Simultaneously, Americans witnessed with some frequency another of steam transportation's definitive attributes – its propensity for danger and destructive accidents. Speed could win races or "blow her up," and fast-moving boats became legendary both for their record times and their horrific accidents. Speed and danger seemed inextricably linked – twin offspring of the steam revolution.

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[2] J. T. Lloyd, *Lloyd's Steamboat Directory, and Disasters on the Western Waters* (Cincinnati: J. T. Lloyd & Co., 1856), 292-293.

The speeds made possible by steamboats and trains had real effects on mobility in America, but they also were at the core of a broader cultural revolution. In the nineteenth-century United States, speed and the abridgement of time and space defined not only steam transportation but also the expanded possibilities and qualities of modern life. For a culture intent on traveling across space and progressing into the future, speed seemed an undeniable good. Deadly steamboat and rail disasters therefore presented a conceptual problem. As the public looked for the explanations for why steamboats exploded and trains derailed, it naturally looked toward steam transportation's signature attribute. Throughout the century, transportation disasters provoked a spirited public conversation about the merits and costs of high-speed travel and, by extension, speed as a broader feature of modern America. Danger proved a significant obstacle to the nation's pursuit of ever-greater speeds. However, not unlike a fast-moving train, Americans' obsession with speed would not be easily stopped. Though debates about speed frequently reappeared following major disasters, Americans continued embracing advances in transportation technology. Analyzing their various conversations about speed and danger reveals that Americans developed an intricate logic that often shifted blame away from speed itself – instead, that logic identified the apparent dangers of high-speed mobility as problems created by human operation and the material conditions of travel.[3] Speed therefore remained a virtue as long as conditions were right for it. By the final decades of the nineteenth century, most Americans agreed that the dangers of steam travel could and

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[3] My analysis in this chapter builds on important earlier observations about American fascination with steamboat speed made by Louis Hunter and Robert Gudmestad. Both scholars briefly explore debates about speed created by steamboat disasters without extensively describing the lasting implications of the debate for perceptions of steam transportation and modern life. Louis C. Hunter, *Steamboats on the Western Rivers: An Economic and Technological History* (Cambridge: Harvard University Press, 1949), 300-304; Robert Gudmestad, *Steamboats and the Rise of the Cotton Kingdom* (Baton Rouge: Louisiana State University Press, 2011), 97-116.

should be limited, not by returning to a slower pace but by properly managing the speed of modern life.

Speed is a measure of distance over time, so for a nation searching for a means to overcome its vast territory, it was also measure of progress. From steamboats' beginning, the benefits of faster travel speeds were immediately apparent; higher speed derived from greater power meant faster trips between population and market centers, meaning more passengers and goods moved along faster and more efficient routes for travel and transport. Quicker travel also meant more trips could be completed by a single boat in any given year, increasing the number of passengers and the tonnage of goods traversing American space. Speed therefore meant financial success to steamboat owners based on the patronage of shippers and passengers who enjoyed the convenience of quick, efficient travel. The desire for speed directed the evolution of the steamboat industry in the first half of the nineteenth century. Shipbuilders continually made improvements, like lengthening hulls and adding extra boilers, to increase power, maximize efficiency in the water, and drive up top speeds.[4] The quest for ever-greater speeds also prompted state and federal infrastructure improvements to western river systems to reduce encumbrances to smooth travel such as debris, snags, and shallow riverbeds. Expanding river infrastructure, including wood yards for supplying fuel, decreased the frequency and length of necessary stoppages. These changes in design and infrastructure combined with

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[4] Hunter, *Steamboats on the Western Rivers,* 62; 87.

refined steamboat operating techniques and accumulated experience of steamboat pilots to increase steadily potential speed and efficiency of water navigation.[5]

The results were substantial, as reflected in the sharp decline of travel times between major cities over the first half of the century. By midcentury, travel times had been reduced by a four to one ratio on average throughout the interior of the United States.[6] Steam power had shrunk the country's distances with decreased travel times and made speed and efficiency the hallmarks of modern travel. Steam transportation's success fed the demand for speed. Ambitious steamboat owners and operators adopted a variety of methods to increase speeds and build up well-publicized reputations for swift transport. Owners often identified their boats as fast before they even entered the water, playing on associations with quickness with names like the *Falcon*, the *Gazelle*, or the *Flying Cloud*.[7] A group of steamboats running from New Orleans to Louisville was called the "Lightning Line."[8] More valuable were observed and recorded demonstrations of high speeds and efficient travel. Owners often encouraged crews to achieve great speeds in an effort to establish a boat's reputation. High pressure engines in particular, due to their ample reserve power and capacity for high levels of steam, held the potential for greater than normal speeds if engineers pushed the machinery for that purpose. Doing so could be advantageous for crew members too. Former steamboat captain Wilson Daniels recollected, "a man's pride and reputation and popularity was to be known as a

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[5] For an extensive study of western river improvements in the antebellum years, see Paul F. Paskoff, *Troubled Waters: Steamboat Disasters, River Improvements, and American Public Policy, 1821-1860* (Baton Rouge: Louisiana State University Press, 2007).
[6] Hunter, *Steamboats on the Western Rivers,* 23-34.
[7] Lloyd, *Lloyd's Steamboat Directory,* 280-286.
[8] Gudmestad, *Steamboats and the Rise of the Cotton Kingdom,* 99.

hot and fast engineer."[9] Captains and engineers who managed steamboats on swift

journeys received public praise from both owners and passengers. Captains and crew

commonly proved a boat's abilities outside major river ports, where they departed with

full heads of steam as townspeople watched in amazement from the riverbank. This

practice became infamous in the wake of the 1838 *Moselle* explosion outside Cincinnati,

which newspapers attributed to just such a boastful start.

It was in this environment where speed determined status that steamboat racing

developed into a popular craze among owners, crews, and the public alike. Nothing

established a boat's fame like a race, against the clock or a rival steamer, and throughout

the steamboat era, the fastest boats became known through record times achieved along a

particular route and through racing victories covered avidly by the press. The vast

majority of races were informal – spontaneous contests sparked on the river between

longstanding rivals who competed for business. One rival passing another with a head of

steam could easily be interpreted as an insult and provoke a race. Other times races were

simply competitions for business. Two boats engaged on the same route sometimes found

themselves literally racing to get to a port first and pick up passengers or freight awaiting

transport. Larger steamboats backed by wealthy owners often raced weaker boats out of

business. In the 1840s the United States Mail Line dominated the route between

Louisville and Cincinnati. When rival boats tried to cut into the line's business by

departing at different times the Mail Line rescheduled its boats to place them into direct

competition with its new rivals. Other companies employed similar tactics, and the results

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[9] Hunter, *Steamboats on the Western Rivers,* 299.

were typically informal races won by the stronger boats. The proliferation of steamboats and competition among them encouraged efforts quite literally to outpace the field.[10]

Steamboat owners eager for broader public attention turned to formal speed trials and scheduled races to demonstrate their boat and crew's superiority. In a speed trial, a steamboat's operators avoided most normal stoppages on a route and instead looked to post a record time. Racers often posted record times, though they also sought the pride and honor of besting a rival, represented materially with the traditional trophy – a pair of deer antlers. After winning a famous 1853 race from New Orleans to Louisville, operators of the steamer *A. L. Shotwell* displayed a set of antlers that held a sign challenging other boats to "take us if you can." As boat owners and crews developed their own internal racing culture, the public followed suit. The excitement of such contests made them regional events, scheduled in advance and attracting significant press coverage and public involvement. Interested followers of the *A. L. Shotwell*'s race with the boat *Eclipse* apparently wagered up to forty thousand dollars on the event. Unlike the smaller, spontaneous races that occurred over shorter distances, a major race like this one was a multi-day contest over an established long distance route. For days, local residents turned up at various points along the route to watch the boats pass by, and many more read of the competitors and the race in newspapers. With both boat and captain's reputations on the line, winning the press battle was part of winning the race. Passengers even took part with published denunciations of opposing boat operators, and when the

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[10] Hunter, *Steamboats on the Western Rivers,* 506-507.

1853 *Eclipse* and *A. L. Shotwell* race turned controversial, owners and supporters of both boats argued in the press for weeks over the disputed outcome.[11]

Mark Twain's nostalgic recollections of old "racing days" in *Life on the Mississippi* are suggestive of steamboat racing's cultural significance. "Racing was royal fun," Twain wrote. As anticipation grew for an upcoming race, the route was stocked with readymade fuel in the form of chopped and bundled wood that could be quickly hitched to the boats while they were in motion. Crews prepared boats especially for racing, stripping them of excess weight. Twain vividly described the typical scene as if it were in front of him: "the two great steamers back into the stream, and lie there jockeying a moment, and apparently watching each other's slightest movement." The shores were filled with raucous crowds cheering on the racers, and on board busy crews sang and urged the boats to faster speeds.[12]

The popularity of these formal steamboat races and their lasting place in nineteenth-century American lore makes it clear that speed took on cultural significance beyond the practical advantages it offered the business of transportation. A steamboat race or a trip in record time was a thrilling display of modern technological capabilities. The catalog of speed trials and steamboat races is one of the clearest records of the advancement of high-speed mobility over the course of the century. Newspapers printed record times and the results of high-profile races. In almanacs, travel guides, and other publications, readers often found tables of "fastest times" that listed the most prominent routes and traced a series of record times from the introduction of steamboat travel to the

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[11] Gudmestad, *Steamboats and the Rise of the Cotton Kingdom,* 102-105.
[12] Mark Twain, *Life on the Mississippi* (New York: The Heritage Press, 1944), 107-108.

current time.[13] Twain included one in *Life on the Mississippi*, giving statistical credence to his lyric descriptions of the fast-moving boats.[14] The succession of record times effectively charted for the public steam technology's victory over the vast distances of the continent.

These tables and published stories of racing and speed trial results also raised the profile of particular boats to near legendary status. The table printed in *Lloyd's Steamboat Directory* labeled the *Eclipse* the fastest boat in the world, and celebrated its extraordinary power by listing its specific travel times to various stops along its route. Twain's table included similar details for the *Robert E. Lee*'s victorious trip over the *Natchez* in a race from New Orleans to St. Louis in 1870. Boats like the *Eclipse* and the *Robert E. Lee* were perfect symbols of speed and power that betokened the triumph of American technology. Popular representations invested racing boats with lives of their own. Twain called racing steamers "stately," "sentient creatures" that eyed one another as they moved.[15]

Steamboat races were occasionally celebrated in commemorative prints produced by major lithographers for public sale. An 1866 Currier and Ives print called "The Champions of the Mississippi – A Race for the Buckhorns" shows at least three boats, including the *Queen of the West* and the *Morningstar*, flying down the river with spectators cheering along the bank.[16] In 1870 the firm published a commemoration of the much-promoted race between the *Robert E. Lee* and the *Natchez*.[17] In the image the boats

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[13] Lloyd, *Lloyd's Steamboat Directory,* 292.
[14] Twain, *Life on the Mississippi,* 110-112.
[15] Twain, *Life on the Mississippi,* 108-109.
[16] Print, "The Champions of the Mississippi" (Currier and Ives, 1866), American Antiquarian Society.
[17] Print, "The Great Race on the Mississippi" (Currier and Ives, 1870), AAS.

travel from the right side of the image to the left foreground, vaguely toward the viewer. The *Robert E. Lee* is closer on the left side of the image, seemingly outpacing the *Natchez* on its way to eventual victory. Crews aboard both boats scramble to achieve faster speeds. Barely visible but clearly perched on the front of the *Natchez* are the symbolic antlers associated with racing victories, which would soon be passed to the faster boat. The adjoined text below the image informed viewers that the *Natchez* had held the previous record for the trip between New Orleans and St. Louis: three days, twenty-one hours and fifty-eight minutes, a time the *Robert E. Lee* had now eclipsed a month later by more than three hours. The text broke down the *Robert E. Lee*'s record trip just like Twain's chart in *Life on the Mississippi*, recording the times achieved at each major stop along the route. The print then prominently listed the captains' names, casting them as praiseworthy combatants.

Once again, the real heroic figures were the boats themselves. Racing prints like the 1870 Currier and Ives presented viewers with another powerful version of the technological sublime.[18] The *Robert E. Lee* and *Natchez* dominate the picture plane; both drawn intricately and shown in much splendor. The fire and black smoke pouring out of their stacks underscores steam's tremendous power, verified by the record travel times posted below. A simpler 1871 image drawn by Thomas Kelly, clearly modeled on the Currier and Ives lithograph, similarly shows the *Danna* and the *Fulton* belching fire and smoke into the midnight sky as they cut swiftly through the water toward the viewer.[19] Passengers and crew play a negligible role here; instead, a bright red glow within each boat makes the vessels appear active and alive. An 1875 print by lithographers Haskell

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[18] See David Nye, *American Technological Sublime* (Cambridge: MIT Press, 1994).
[19] Print, "Midnight Race on the Mississippi" (Thomas Kelly, 1871), AAS.

and Allen of Boston entitled "Midnight Race on the Mississippi" shows the *Natchez* again behind a competing boat.[20] In almost every print of this kind, the racing boats move toward rather than away from the viewer – a visual convention marking the abridgement of space and reinforcing the power of the boats. In popular imagery and written texts, Americans identified steamboats and steamboat racing with the nation's technological progress.

Of course, while steamboat racing remained popular through the century and maintained the public's association of steamboats with speed, trains surpassed steamboats not long after their arrival both in terms of possible travel times and symbolic power as objects of speed. Railroads offered nothing quite like the excitement and competition of a steamboat race, but they achieved new heights of speed that thrilled passengers and furthered their expectations that travel should be fast and efficient.[21] Competition among steamboat companies had driven the pursuit of high speeds and provoked racing culture, but railroads represented a much more profound threat to steamboat's supremacy in travel and in the American mind. Top train speeds quickly surpassed those of the fastest steamers. Trains also cut more directly across terrain than steamboats did on meandering rivers; thus they represented more profoundly than steamboats the conquest of the topography and also covered the distance between cities in far fewer actual travel miles. A traveler going from Cincinnati to St. Louis, for example, covered 702 miles on the river but only 339 by rail. This made for drastic differences in travel times: by the late

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[20] Print, "Midnight Race on the Mississippi," (Haskell and Allen, 1875), AAS.

[21] Passenger responses to railroad speeds are discussed in Nye, *American Technological Sublime,* 45-76. The various effects of railroad speed on passenger experiences are best analyzed in Wolfgang Schivelbusch, *The Railway Journey: The Industrialization of Time and Space in the Nineteenth Century* (Berkeley: University of California Press, 1986).

1850s the trip between the two cities averaged two days, twenty-two hours by steamboat and sixteen hours by train, less than a quarter of the time.[22]

Competition from railroads in their early years compelled steamboat companies to push for higher speeds and faster trips to keep up, but the effort was ultimately fruitless. Steamboats tended to have the early advantage in comfort, but as railroads expanded and drove up passenger expectations, steamboats struggled to match the potential for high-speed mobility railroads offered. Tracing this transition, Louis Hunter notes that "steamboatmen had to bear the humiliation of having exceptionally fast packets described as 'going through with railroad speed' or 'swift as a locomotive.'"[23] While river transport remained essential for a mobile, developing nation, railroads fulfilled American aspirations for speed overcoming distance to an even greater extent than steamboats.

Finally, railroad speeds had significant cultural influence beyond travel. Trains accelerated a transformation that steamboats had begun in which physical space, the American landscape, and daily life became increasingly organized by speed and time. Mirroring route breakdowns like those printed in *Lloyd's Steamboat Directory* and Twain's *Life on the Mississippi,* captains occasionally marked their times on the river with physical signposts. These markers, like one on the Mississippi River where the *A. L. Shotwell* was after three days on its record trip, sometimes made it onto maps, measuring distance for future crews and travelers not in miles but in steamboat time. As travel times decreased and trips could be measured in hours rather than days or weeks, the traveling public confronted a world broken down into ever-smaller units of time. Steamboat

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[22] For a table comparing steamboat and rail mileage and travel times, see Hunter, *Steamboats on the Western Rivers,* 490.

[23] Hunter, *Steamboats on the Western Rivers,* 491.

competition had made steamboat companies more attuned to timely departures and

arrivals, and owners advertised their boats based not only on speed but on punctuality.[24]

Scheduled departures shaped passengers' expectations and increased their own

attentiveness to time.

Because railroads cut travel times even more drastically, travelers necessarily

dealt with finer measurements of time after their introduction. Many destinations that

were previously several days' journey away could now be reached the day of departure.

Departure and arrival times were typically scheduled to a precise hour and minute, and

railroad companies published time tables for passengers detailing where trains would be

at the same time every day of service. This further necessitated regular high speeds so

that trains could make up delays and stay reliably on time. Time tables linked cities and

towns based on rail routes and defined them in relation to the time it took a train to pass

between them. Clocks and personal timepieces became ubiquitous in a society organized

this way. Regular, frequent railroad traffic also necessitated a new structure for time

itself. For much of the nineteenth century, time was measured locally – individual towns

and cities, even within the same small region, kept their own times that were all slightly

different from each other. Railroad companies started keeping their own different times

as well, such that in larger railroad stations several clocks all showed different local

times. Rising speeds and the expansion of railroads in the United States necessitated

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[24] Gudmestad, *Steamboats and the Rise of the Cotton Kingdom,* 100-102.

standardized time, and by 1889 the United States was split into four time zones, first just for railroad time but eventually broadly adopted.[25]

The speeds achieved by steam transportation technology had wide-ranging effects for passenger travel and commercial transportation but also for Americans' daily experiences of space and time. Speed was the catalyst that made the celebrated "annihilation of space and time" so stunning.[26] Speed was an indispensible feature of modern life, even definitive of American national identity. Consequently, with the sublime machines that moved so swiftly around the nation continuing to explode, collide, and derail, Americans confronted both a challenge to public safety and to the accepted ideas about technological progress itself.

In September 1852, in a remarkably perceptive address to an assembled grand jury of the U. S. District Court in New York, Judge Samuel Betts described the emergence of America's obsession with speed driven by technological advancements in steam transportation. "You are aware," the judge began, "that since the introduction of steam-navigation, there has been an increasing desire and anxiety to attain the utmost speed." The proprietors of steamboats had a natural incentive to achieve high speeds and therefore success, but the desire was widespread: "there is a spirit manifested on the part of the people, to encourage, countenance, and to stimulate them to attain the greatest speed." Judge Betts continued the history lesson by charting the technological

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[25] On the effects of railroad travel on conceptions of space and time, see Schivelbusch, *The Railway Journey,* Chapter 3. A broader study of modern technology's role in reshaping space and time is Stephen Kern, *The Culture of Time & Space, 1880-1918* (Cambridge: Harvard University Press, 1983).
[26] Americans not only celebrated the increasing speed of transportation, but also of communication, resulting from new technologies like the telegraph. See Daniel Walker Howe, *What Hath God Wrought: The Transformation of America, 1815-1848* (New York: Oxford University Press, 2007).

improvements made to the river boats of the East that had enabled them to increase speeds from five to twenty-five miles per hour in a few decades. The introduction of the steam locomotive, he noted, had only spurred "fresh exertions" to advance steamboat power. But rather than a praiseworthy account of American progress, the judge's address was a cautionary story. "In this state of things there is no doubt great hazard," Betts said. Whatever its advantages, steam power was "an immense force," whose use was "attended with great danger."[27]

Judge Betts's comments came in the summer of 1852 in the aftermath of a deadly fire aboard the steamboat *Henry Clay* that sent dozens to their death in the Hudson River. The assembled grand jury was to evaluate and decide whether the owners and operators of the *Henry Clay* had violated existing state or federal laws and "neglected to do what was incumbent upon them for the safety of the passengers." In his address to the jury, the judge had placed the case in the context of a complex cultural problem long in the making: a powerful desire for travel at high speeds that had seemingly contributed to catastrophic disaster and loss of life.[28] Seeking explanations for this pattern of death, the American public often looked toward speed. Within a society that praised speed and demanded it from public conveyances, steam transportation disasters provoked moments of critique and collective national reflection, as the public questioned the high speeds achieved by steamboats and trains and also a broader modern culture that seemed to be valuing speed over safety.

American agitation over steam disasters had reached an initial apex in 1838, when several significant steamboat accidents killed hundreds and prompted the passing of the

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[27] *New York Evening Post,* September 8, 1852.
[28] *Evening Post,* September 8, 1852.

nation's first major steamboat safety legislation. When steamboat disasters continued,

public alarm remained high. An article on steamboat disasters in the *North American*

Review of January 1840 – the same month of the *Lexington* fire in Long Island Sound –

epitomizes the critique of speed. The author lamented that the popularity of particular

steamboats was based on "a reputation for speed, which promises a progress of a few

more miles a day," rather than safe construction and experienced captains. Criticizing

both passengers and crews, the author noted that "to gain these few hours a great majority

of those concerned will sacrifice every consideration of prudence." "Excited passengers"

and "ambitious captains" shared a mania for speed that led to unsafe decisions (including

racing) by which they put themselves and others in danger. The author also told of a

personal experience on a Mississippi steamboat engaged in a "brag trip." As the boat

pushed for higher speed and passed other boats on the water, some passengers expressed

alarm, but most charted the progress excitedly, "estimating from time to time her rate of

speed." When the journey finished, "all tongues were loud in applause of our captain and

his fast boat" and newspapers recorded and praised the time. Such sentiments, the author

said, undoubtedly served to challenge other captains to match the effort. With a touch of

drama, the author finally revealed that the boat had been the *Moselle*, which had

famously exploded just one week later.[29]

The much-publicized explosion of the *Moselle* outside Cincinnati in April 1838

sparked significant dialogue about speed because of the tremendous scale of the disaster

and its reported cause: witnesses suggested that the captain, "desirous of showing off her

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[29] *North American Review,* 50 (January, 1840), 22; 28-30.

great speed as she passed the city," had left the port carrying excessive levels of steam.[30] This was not an unexpected or uncommon practice. Looking to save or make up time, steamboats often kept engines running during stops and held onto accumulated steam in order to depart with greater speed.[31] The captain on the *Moselle* also had further reason to show off its power to onlooking crowds – the *Moselle* was a new boat, and newspapers reported it was a "brag boat" that had made several record trips since it started service. A passenger on the *Moselle*'s upriver trip to Cincinnati told the same story as the author of the *North American Review* article: the captain sought a speed record, and had gone to great lengths to secure it, including adding rosin to the fires and not letting off steam at stops.[32] Upon arriving at Cincinnati in record time, the passengers gave the captain a card praising his "skill and prudence" and recommending the boat to other travelers. Newspapers, far from the region, echoed the commendations. A brief note in the *Columbian Centinel* of Boston read "The *Moselle*, a splendid new steamboat, made a trip from St. Louis to Cincinnati last week, in the very short space of two days and sixteen hours! This is literally overcoming space, and bringing distant places together as near neighbors."[33] It was an unfortunate irony that, as sometimes happened, delays in the spread of news meant the *Centinel*'s comment appeared in the April 28 issue, two days *after* the *Moselle* had actually exploded; clearly, the challenges of distance had not entirely disappeared.[34]

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[30] *Ohio Statesman,* April 27, 1838.
[31] *Cincinnati Daily Gazette,* May 2, 1838.
[32] *Evening Post,* May 5, 1838.
[33] *Columbian Centinel,* April 28, 1838.
[34] Other examples of transportation delays affecting the timing of news are given in Chapter Two.

In the aftermath of the *Moselle* disaster, the press focused much of the blame on the captain (who had been found dead, apparently blown from the boat into the streets of Cincinnati). The circumstances of the explosion provoked widespread condemnation of the captain's bravado in his apparent attempt to display the boat's speed. The *Cincinnati Daily Gazette* tied his actions to a culture of "recklessness, on the part of captains and engineers, that induces them to run any risk to accomplish their trips in the shortest possible time, knowing that for this they are trumpeted to the world through the public press, their boat acquires a reputation for speed, and consequently an acquisition of custom."[35]

Even though direct responsibility seemed to reside with the captains and engineers who pushed the boat to an unsafe speed, a disaster like the *Moselle* prompted conversation about the impulse for speed itself. In an honest moment following the *Moselle* explosion, the *Cincinnati Daily Gazette* accepted some culpability for the disaster, "having praised the speed and power of the boat" in its columns. The reports in the *Gazette* and other papers of the *Moselle*'s reputation as a fast boat "doubtless contributed to inflate the ambition of its captain and owners, to excel others in rapidity," the paper admitted. With its admission of guilt, the *Gazette* acknowledged the profound power of the press to shape the public reputation of steamboats and therefore the expectations of the travelers who used them. The press bore responsibility for creating the expectation of ever-greater speeds, and thus "the *press* must change its tone." "Boats

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[35] *Cincinnati Daily Gazette,* May 3, 1838.

must be praised for their comfort, convenience, and the care and discretion of their

managers – but, *not for their speed,*" the article continued.[36]

In actuality, as engineers and the scientific community were finding out, the

technical causes of boiler explosions were various and complex.[37] An official citizen

committee in Cincinnati led by Dr. John Locke examined the *Moselle* case and produced

a technical report about the causes and possible measures for reform. After performing an

extensive series of experiments, Locke argued that several forces contributed to boiler

explosions like that on the *Moselle.* Poorly constructed machinery and engineers who

lacked sufficient technical knowledge to operate it safely were at the top of Locke's list.

Low levels of water in boilers could allow the metal of flues and boilers to become

overheated, which in contact with water could produce sudden high pressures of steam.

The most direct cause of the *Moselle* explosion, he surmised, was simply a greater build

up of steam than the boilers could withstand; the failure to release steam at Cincinnati in

an effort to start fast, he said, certainly would have created that pressure.[38] There were,

then, technical explanations for why pursuit of high speed could produce excessive

pressure and explosion. Amidst the mystifying science of steam boilers and explosions,

the idea that high speed created explosions was perhaps among the easiest for the public

to understand.

The narrative about the dangerous quest for speed was also often the most

compelling. Even Locke, in the middle of intricate scientific description, commented on

the "moral causes" of explosion. "We are not satisfied with travelling with a speed of ten

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[36] *Cincinnati Daily Gazette,* April 27, 1838.
[37] See John G. Burke, "Bursting Boilers and the Federal Power," *Technology and Culture,* 7, 1 (Winter, 1966), 4-5.
[38] "A Report on Explosions and the Causes of Explosions…" (Cincinnati: 1838), 36-40; 54.

miles per hour, but we must fly," Locke wrote; "A steam boat must establish a reputation

of a few minutes 'swifter' in a hundred miles than others." Locke attributed the speed

obsession to the pursuit of economic gain on the part of owners and consent on the part of

passengers. While regulatory and scientific efforts dealt with what Locke called the

various "immediate causes" of steamboat disasters, the public found it impossible to

ignore the apparent signs that American progress had likely outstripped care and

prudence.[39]

In this higher level conversation that disasters provoked, the public's expectation

for speed continued to come under fire. The *North American Review* criticized the public

for encouraging speed trials and races and extended the commentary to a larger cultural

reflection on "this frantic desire to get ahead, no matter at what risk, or for what object, or

haply for no object at all."[40] The 1875 wreck of an ocean steamship, the *Schiller,*

similarly became cause for broader commentary in a *Harper's* editorial. "The public

itself is largely responsible for these dire events. If a railway train is detained for five

minutes, there are scores of passengers who are bursting with impatience, and urge the

conductor to push on."[41] The writer went on to suggest that when boats went full speed

through fog and arrived safely at their destinations, passengers praised the skill of the

captain, but when a boat was delayed or slowed because of threat of fog or ice, restless

passengers (like those aboard Lawry Wilford's *Woodville* in Oliver Optic's story)

complained and the press denounced the company as behind the times. Public impatience

encouraged dangerous speeds, the writer said, and a more reasonable public that

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[39] "A Report on Explosions," 28.
[40] *The North American Review,* 50 (1840), 28.
[41] *Harper's Weekly,* May 29, 1875.

demanded safety over speed would be the first step toward more secure travel. After an 1868 railroad accident, another *Harper's* writer noted that reckless management coincided with a "general eagerness of railroad travelers."[42] The writer gave an example of passengers who had grown indignant at a Hudson River Railroad train traveling slowly due to a snowstorm; "they seemed solely anxious to go fast, whatever would probably occur." The writer suggested that had the train gone faster and derailed because of it, the passengers would have denounced the managers.

The unreasonable expectations of modern travelers were symptomatic of a much larger problem, according to many observers. Minister Orren Perkins's sermon on the 1854 *Arctic* disaster found fault with a culture that sought speed and progress at any cost. Public sentiment encouraged the "reckless haste" so often seen from steamboat and train operators. "All hands on board, all men on shore lift up their voices in praise of the fleetest vessel, and the press takes up the strain and echoes it all through the land, until awakened by the crash of a collision, or an alarm of fire, and the wails of hundreds perishing," Perkins told his congregation. Commentary like Perkins's sermon made steamboat and rail disasters more than individual tragedies; these events represented evidence that Americans had perhaps too eagerly embraced the advantages brought by steam technology.[43]

The intense desire for speed shared by owners, operators, press, and public manifested itself most clearly in the arena of travel, but to many observers, it was endemic to a modern American culture built on the pursuit of gain. In an 1853 lecture, Ralph Waldo Emerson said, "Everything is sacrificed for speed, - solidity and safety.

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[42] *Harper's Weekly,* January 4, 1868.
[43] Orren Perkins, "Lessons of the Sea: A Sermon on the Loss of the Atlantic Steamer Arctic" (1854).

Americans, Emerson claimed, "would sail in a steamer built of Lucifer matches if it would go faster."[44] Foreign travelers touring the United States on river and rail often commented on the reckless national spirit supposedly revealed by America's record of disaster. One French traveler visiting the country in 1836 said the danger of explosions "makes little difference to Americans provided they can go fast."[45] Arthur Cunynghame, an English tourist writing of the Mississippi River region in 1850, said that "the constant struggle which is here going on, as to who shall 'go-ahead' at the greatest speed, certainly engenders an amount of selfishness."[46] Europeans riding on American railroads often complained of their lack of safety. Englishman Charles Weld was on a Baltimore and Ohio train in 1855 that derailed when crews had increased speed to overcome earlier delays; Weld noted that passengers nonetheless applauded the attempt to make up time.[47]

Evidence suggests that American railroads were, in fact, comparatively more deadly than those in Britain, and there are several clear reasons why. On most American railroad lines, trains operated on a single-track system, increasing the likelihood of collisions. Signaling was also fairly rudimentary on American rails. The rails themselves, often built quickly with flimsy materials, sometimes broke under the pressure of increasingly heavy American trains. In Britain, a Board of Trade began investigating railroad accidents in 1842 and required numerous safety measures; no comparable regulatory body existed in the United States until Massachusetts created a Board of

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[44] Ralph Waldo Emerson, quoted in John F. Kasson, *Civilizing the Machine: Technology and Republican Values in America, 1776-1900* (New York: Hill and Wang, 1976), 129.
[45] Quoted in Gudmestad, *Steamboats and the Rise of the Cotton Kingdom,* 112.
[46] Quoted in Hunter, *Steamboats on the Western Rivers,* 301.
[47] Mark Aldrich, *Death Rode the Rails: American Railroad Accidents and Safety, 1828-1965* (Baltimore: The Johns Hopkins University Press, 2006), 15.

Railroad Commissioners on the state level in 1869.[48] Nevertheless, Europeans traveling in America typically commented on speed and saw in transportation disasters the consequences of the fact that Americans were "always in a terrible hurry."[49]

"Undue haste, unwarrantable exposure of life, unwise risking of property – any thing to 'get on' in life" – this was the "spirit of the age" in America, one writer for *Harper's Weekly* said after another deadly rail accident in 1868. "People are not content to be moderate and sure; they want to *hurry* to the end of their journey, to *hurry* to become rich, to *hurry* to gain repute, and thus they soon *hurry* through life." Each new disaster offered Americans a chance at least momentarily, to evaluate American technological advancement and question whether it was an absolute good. The *Harper's* editorial offered a reflective and somewhat nostalgic response to the ongoing pattern of destruction: "One is almost tempted, as he reads the daily records of accidents on railroads and steamboats, to wish for a return of the old times when slow-going coaches were the fashionable vehicles for public travel."[50]

Almost tempted. Even as Americans regularly questioned speed in the aftermath of transportation disasters, their reflections furthered the notion that speed was an acceptable feature of modern life. Though Americans' responses to speed and danger appear ambivalent, their critiques rhetorically separated safe speed from unsafe speed. Speed became unsafe when it was deemed unreasonable, reckless, or excessive. Meanwhile, faith in the technology remained. As John Locke wrote in his report on the

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[48] Aldrich, *Death Rode the Rails,* 15-22; 71.
[49] Michel Chevalier, quoted in Schivelbusch, *The Railway Journey,* 112.
[50] *Harper's Weekly,* November 14, 1868.

Moselle explosion, "these causes are only an excess of those things which are in themselves laudable."[51] In other words, speed was a fundamental feature of a progressive modern life, and it only became dangerous when human carelessness, or occasionally external forces, made it so. Complaints about excessive speed were driven largely by disasters, as steamboat explosions typically suggested to the public clear evidence of unnecessary speed. Especially with death tolls mounting, steamboat racing seemed a particularly egregious case of gratuitous speed and dominated much of the discourse.

As the lines from the song "Mississippi Boat Race" suggest, steamboat racing was exciting and popular, but it also carried associations with danger which grew as disasters became more frequent. The extent to which steamboat racing actually was dangerous was questionable, especially for those inside the industry. In *Life on the Mississippi,* Twain rejected the popular notion that racing was dangerous, and argued that it was actually safer than standard travel. "No engineer was ever sleepy or careless when his heart was in a race," Twain remembered; "the dangerous place was on the slow, plodding boats, where the engineers drowsed around and allowed chips to get into the 'doctor' and shut off the water-supply from the boilers."[52] Louis Hunter likewise argues that the danger of racing was probably overstated.[53] Even if this is true, Americans' responses to disasters suggest that the perception that racing was dangerous was powerful and any disaster that occurred while boats were supposedly racing only reinforced it in Americans' minds. However, in the conversations that followed these disasters, participants divorced racing,

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[51] "A Report on Explosions," 28.
[52] Twain, *Life on the Mississippi,* 107.
[53] Hunter, *Steamboats on the Western Rivers,* 303.

a dangerous activity they blamed on reckless steamboat operators, from speed, which remained a celebrated feature of steam technology.

Some of the nation's most significant steamboat accidents became linked with racing. On May 8, 1837, the boiler on the *Ben Sherrod* exploded and set the boat aflame on a trip from New Orleans to Louisville, killing nearly one hundred fifty passengers and crew members. Newspapers cited survivor testimony suggesting that the *Ben Sherrod* had been racing the steamer *Prairie* throughout the journey, and they wholeheartedly condemned the actions of the boat's captain and crew. "When is this system of racing to cease?" the *New Orleans Times-Picayune* asked; "thousands and thousands of lives have been lost on the Mississippi by the racing of boats and the culpable carelessness of the officers."[54] A committee of citizens of Natchez, Mississippi, including several survivors, formally echoed these sentiments, stating "that the practice of steamboat racing is in the highest degree dangerous to the lives and property of individuals travelling or passing on them… and ought to be condemned and discountenanced by the whole community."[55] More than a month after the fire the *Times-Picayune* urged an end to the "savage cruelty" still apparent as boats continued to race.[56]

Fifteen years later, after those traveling on the *St. James* enjoyed a Fourth of July outing off the Mississippi coast, the boat's boilers exploded, killing several dozen passengers. Reports quickly surfaced that the *St. James* had left with the steamer *California* and the two boats were racing to reach their shared destination first.[57] Later that same month in 1852, over fifty passengers burned or drowned in the Hudson River

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[54] *New Orleans Times-Picayune,* May 18, 1837.
[55] *Albany Argus,* June 6, 1837.
[56] *Times-Picayune,* June 27, 1837.
[57] *Times-Picayune,* July 5, 1852.

when the *Henry Clay* caught fire. The claim that the *Henry Clay* had been racing appeared in the first sentence of the *New York Evening Post's* coverage the following day. Relying on survivor and witness testimony, the *Evening Post* reported that the boat had set off in company with the steamer *Armenia* and racing was apparent from the start. For one stretch of nearly an hour, the two boats ran alongside one another, employing fenders on their sides to prevent a damaging collision. After the fire was noticed, the pilot ran the flaming boat to the river's eastern bank. With the aid of observers on shore, many passengers survived, while numerous others drowned after the fire forced them into the water. Reports from several surviving passengers offered suspicion and evidence of racing, which newspapers confirmed. Readers of the *Evening Post* learned that "all seemed to be actuated by but one miserable ambition, and that was to beat the rival steamer."[58]

That the public associated racing with danger is clear from the fear and anger displayed by some passengers aboard boats that supposedly engaged in races. Testimony in the *Henry Clay* case revealed that numerous passengers had expressed apprehension about the boat's apparent contest with the *Armenia*. Rumors of a rivalry with the *Armenia*, unusual behavior from the boat's crew, skipped landings, and other signs of racing sparked objections among passengers on board. One passenger, fearful "the boat would blow up," took shelter at the bow of the boat, placing his baggage between himself and the boiler as a precautionary shield (this story drew laughter from those present at the inquest who recognized the futility of the attempt).[59] A frightened couple asked to get off at Bristol and were refused. Concerns peaked as the boats nearly came into contact with

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[58] *Evening Post,* July 29, 1852.
[59] *New York Weekly Herald,* August 7, 1852.

one another. "Several ladies shed tears" and others fainted, a passenger remarked, and the alarmed women urged their husbands and any willing "gentleman" on board to force an end to the racing.[60] Several passengers claimed to take action or witnessed others approaching the captain and other crew. John L. Thompson commented on the apparent high level of steam to the engineer and said "I hope you will not blow us all out of the water."[61] Isaac McDaniels, perhaps the same passenger elsewhere reported to have "seized" the arm of the captain, said he "remonstrated against the racing of the boats," telling the captain he "did not wish to risk the lives of [himself] and family."[62] In response to their distress, the passengers received assurances that there was no danger and the crew valued their lives as much as any of the passengers.

For these passengers, danger had become real and racing was no longer a spectacle but a perceived threat to their lives; in the moment concerns for safety overcame the desire for swift travel. Isaac McDaniels told the captain "I would rather get into New York later than have any racing by the boat."[63] A public that relied on and expected timely transportation increasingly drew the line at racing, which stood out as a frivolous and dangerous activity. A *Harper's Weekly* editorial highlighted the root of the problem – traveling by steamboat clearly presented some peril, but racing created an *unnecessary* danger, serving the ambitions of the boat's owners and crew rather than the goal of efficient travel. The writer offered the Hudson River steamer *Drew* as an example: the *Drew* left New York in the evenings at six o'clock and "without any difficulty" arrived in Albany roughly twelve hours later, in ample time for passengers to

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[60] *Evening Post,* July 29, 1852.
[61] *Evening Post,* July 30, 1852.
[62] *Weekly Herald,* August 7, 1852.
[63] *Weekly Herald,* August 7, 1852.

transfer to the morning's outbound trains. "But we understand that something has been said of the slowness of the *Drew*," the editorial continued, and thus each time its opposition appeared the *Drew* "is pressed to tremendous speed," reaching Albany several hours earlier. Thus "under the influence of the passions," the crew pushed speeds past normal levels and often to "the fatal point." The editorial's critique rested on racing, however, not on speed. Speed was a necessary condition of modern life – the *Drew* had to get passengers to Albany for the morning train. Racing was reckless, a product of the "passions," an act carried out by greedy, vain men worthy of public disdain.[64]

As public opinion about racing grew more negative, accusations of racing became serious enough that they often warranted public denials written by the accused parties. After the *Ben Sherrod* disaster, the captain published a statement refuting charges of racing and other wrongdoing.[65] Captain Thomas Clark of the *St. James* felt it necessary to defend himself publicly with a statement published in the *Times Picayune,* even though he was officially cleared of culpability. After hearing from witnesses, the coroner's jury found insufficient evidence to attribute the cause of the explosion to negligence on the part of any on board. Engineers, a former captain, and the state inspector testifying before the jury suggested that a lack of water in the boilers was to blame, but made no link to racing or excessive speed.[66] Though Clark was cleared of official culpability, he still had to defend himself from charges leveled in the press, pleading that such "misrepresentations and falsehoods" relating to both his moral and professional character

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[64] *Harper's Weekly,* August 3, 1867.
[65] *Rhode Island Republican,* July 4, 1837.
[66] *Times-Picayune,* July 10, 1852.

quickly cease.[67] The three owners of the *Henry Clay* similarly recognized the significance

of public opinion and the power of the press. Within days of the disaster, the owners

addressed a statement "To the Public" asking "at your hands a suspension of opinion for

a few days" during which they would prove that no racing had occurred.[68] These defenses

reflect their authors' awareness of racing's salience in the public mind. A suspicious

public could do significant damage, even after a jury's exoneration. Reputations were

built on speed but could just as easily be destroyed by public consensus that a boat had

been racing.

This suggests the predicament steamboat operators could potentially find

themselves in. With so much at stake, the debates in print over racing are understandable,

but they reveal significant disagreement about what actually constituted racing and

excessive speed. One captain expressed fear after an accident that "the traveling

community may be misled by some remarks" – such concerns seem justified considering

the uncertainty that followed steamboat disasters where racing was accused.[69] Though the

Weekly Herald concluded that the *Henry Clay* had been racing before it took fire, the

paper noted that "people differ very much as to what racing is, and what amount of steam

may be regarded as excessive."[70] Countering the testimony of others in the *Henry Clay*

case, passenger John L. Thompson said he "noticed nothing unusual in the speed of the

boat," and though aware of the rivalry he saw no indication of racing.[71] Other passenger

testimony used as evidence was tentative, based in rumor, or betrayed a lack of

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[67] *Times-Picayune,* July 11, 1852.
[68] *Evening Post,* July 31, 1852.
[69] *Daily Missouri Republican,* April 30, 1852.
[70] *Weekly Herald,* August 7, 1852.
[71] *Evening Post,* July 30, 1852.

familiarity with common experiences of steamboat travel. Survivors of the *Henry Clay*

fire spoke vaguely of an "apparent anxiety" among the crew and rumors before boarding

about a possible race. Many said at times the boat "appeared to go faster," while others

pointed to the "uncommon jarring about the boat," though the light frame of many boats

created a vibration even at normal speeds.[72]

There was certainly reason to be unsure, as the high speeds achieved by boats and

the nature of competitive river transport could appear like racing when perhaps it was

not. Steamboat operators described several such scenarios. Captain Clark of the *St. James*

responded to accusations that his boat was racing the *California* with the claim that it was

natural that the *California* would frequently fall behind and then again pass the *St. James*,

as the boat's design made it faster in deep water and slower in shallow water. Thus the

normal traveling speeds of the two boats over the route could mislead observers to

believe a race was on. Clark certainly seemed aware of the damage any perception of

racing could cause and claimed he purposefully avoided it, choosing to remain at Biloxi

until the other boats had gotten ahead "as to prevent the possibility of creating any

excitement."[73]

William Radford, a part-owner of the *Henry Clay*, described similar precautions

taken prior to the boat's ill-fated trip down the Hudson. On trial for allegedly racing and

endangering passenger lives, Radford had reason to firmly deny that the boat was racing

the *Armenia*; instead his testimony only made the situation more unclear. Radford told

the jury that after learning that the *Armenia* would be running the same route as the

Henry Clay, he approached the *Armenia*'s captain, Isaac Smith, to express concerns about

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[72] *Evening Post,* July 30, 1852; Hunter, *Steamboats on the Western Rivers,* 81.
[73] *Daily Picayune,* July 11, 1852.

competing with one another. Smith said he had chartered the boat to a Mr. Bishop, who refused to delay the scheduled trip. Smith told Bishop that there should be no racing, and Bishop agreed. Radford then described a conversation he and Thomas Collyer (another *Henry Clay* owner) had with Smith about how to run the two boats "so as not to create any excitement or have any racing." They agreed that the *Henry Clay* would start ahead of the *Armenia* and run at "regular speed." Radford was not on the *Henry Clay* when the fire occurred, but he had suggested Collyer ride along and report on whether the agreement was kept. Though the owners often rode on the boat, Radford said they had never taken charge, leaving the captain "fully accountable" for his boat. Radford did not explicitly deny that the boat had been racing, but noted that it was capable of reaching twenty to twenty-two miles per hour and had only been going about sixteen or seventeen miles per hour during the stretch before it caught fire.[74]

If accurate, Radford's account of the owners' agreement offers a fascinating illustration of the ambiguity about racing. Like Clark, Radford and his fellow steamboat owners clearly understood that even rumors about racing could attract public criticism. Despite declaring his faith in his employees in his testimony, Radford and others also seemed aware that two rival boats running alongside one another might spark a race, so they took precautions to avoid the temptation. Still, it is easy to imagine a scenario in which such an agreement to *avoid* the perception of racing could actually create it. The papers stated that the *Armenia* eventually caught and passed the *Henry Clay* after skipping the landing at Hudson. Under instructions to stay ahead of the *Armenia* for the purpose of avoiding racing, the crew of the *Henry Clay* would possibly have increased

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[74] *Evening Post,* August 4, 1852.

steam to move back out ahead, and all of the sudden the two boats would appear to be racing. In all likelihood the *Henry Clay* was indeed involved in a contest of speed – other testimony certainly made it probable enough that the jury rendered a guilty verdict. Still, the disparate accounts of what happened aboard the boat seem less indicative of a false denial or cover up and more suggestive of the indefinite line dividing acceptable, much desired quickness and excessive or reckless speed.

Steamboat racing did happen, and with frequency – both scheduled races and spontaneous contests are well-documented. On the other hand, the explanations of some employees about why their actions might appear like racing even when they were not engaged in a contest of speed seem plausible. The blurred line between racing and speedy travel was in many ways a natural product of the modern transportation culture that steam technology had produced, where passengers expected punctuality and praised steamboat lines for shaving time off a journey, where the boats with a record of fast times earned popular approval, and where the first boat to port received the reward of the best business. Those in charge of operating steamboats faced pressures to achieve high speeds desired by owners, urged by passengers, and celebrated by the press, and thus in a very real sense, everybody was racing.

Despite the ambiguity, juries still made decisions and the public made their judgments about what was reckless and what was admirable, and typically the evidence that proved speed was "excessive" was the occurrence of disaster itself. As a *Harper's* writer stated, "it is not easy to prove that on any occasion this steamer has strained her powers unreasonably. Indeed it is never very easy to prove such a fact under such

circumstances until it proves itself by an explosion."[75] Disasters proved public suspicions

of unreasonable speed, and when boats did not meet disaster, their swiftness generally

received praise. Amid pages of disaster stories in *Lloyd's Steamboat Directory,* many in

which the author spoke of operator recklessness, the author lauded the *General Pike*, a

passenger boat of the United States Mail Line. The boat made the trip "from the Falls of

Ohio to St. Louis in from thirty-nine to forty-four hours, almost rivaling the iron horse in

speed," any yet it and the other Mail Line boats had never suffered a disaster. The

conclusion was clear: "we have it demonstrated that the greatest speed in steamboat

travel may, under proper management, be consistent with the most perfect security."[76]

When they labeled disasters the results of carelessness and excess, writers actually

encouraged the belief that speed was itself safe. Each successful steamboat trip suddenly

proved that high speeds could be achieved without danger if boats were managed with

discipline and control.

Again, racing and high speeds had a definite relationship to exploding boilers.

The pressures boilers produced to power steamboats against currents and to even regular

operating speeds were significant enough sometimes to burst boilers with extreme force.

When engineers or captains overloaded safety valves or added highly combustible

materials to the fuel in order to maximize speed steam could reach extraordinarily high

pressure. But the level at which steam pressure became excessive and burst a boiler was a

direct function of the boiler's design and condition, which itself depended on a number of

conditions including water level in the boiler, the metal used for the boiler and its

construction, and so on. Though various technical attributes of steam technology

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[75] *Harper's Weekly,* August 3, 1867.
[76] Lloyd, *Lloyd's Steamboat Directory,* 129.

contributed to the possibility of explosions, observers could more easily identify the actions of human operators than the mechanics of the technology, and apparent recklessness with passenger lives was so clearly immoral that it often sufficiently explained the problem.

Racing in particular was thought so clearly reckless that it typically absorbed the weight of public censure to the extent that it obscured other potentially dangerous circumstances. The day after the *St. James* explosion in 1852, the *Times Picayune* noted that extensive investigation would be required to determine the cause. Engineers, the paper reported, had suggested there was probably a lack of water in the boilers, and that "the signs were more those of gas than of steam." Then, the *Times Picayune* quickly moved past these more technical explanations: "Be that as it may, it is not denied in New Orleans that the boat was engaged in a race, or, as it is commonly called, a 'head of speed' with the *California*." Despite having earlier noted the lack of good information, the writer said the "inevitable deduction" would be that passenger safety had been sacrificed in the eagerness to beat the other boat.[77] Later that week the paper informed audiences that "it was rare indeed that a boat ever explodes her boilers when she is under full headway." The *Times Picayune* said, incorrectly, that an explosion was really only possible with low water or defective boilers. The paper implicitly labeled steamboats safe, even at speed, then it equated racing with "holding men over a volcano with the probability, we may say the certainty, of its bursting forth."[78]

In the weeks following the *Henry Clay* disaster, accusations and evidence of racing were so prominent that the direct cause of the fire went virtually unexamined in

[77] *Times-Picayune,* July 5, 1852.
[78] *Times-Picayune,* July 8, 1852.

the press. The New York papers reported on the disaster extensively, and from the

beginning racing was the implied cause. Yet neither the *Evening Post* nor the *Herald*

explained or speculated as to how the fire started in the first place, or ever made the direct

link between the boat's supposed high speed and the fire. Witness testimony given before

the coroner's jury dealt only with various evidence of racing, and owners and employees

from both the *Henry Clay* and the *Armenia* responded publicly to accusations of racing.

A discussion of the cause of disaster was such a standard part of disaster coverage that its

relative absence here is revealing. Racing was believed to be so dangerous that it became

the only necessary evidence of wrongdoing. The coroner's inquest set about proving that

the *Henry Clay*'s operators had been racing, and therefore reckless with human life, not

how high speed was specifically to blame for the deadly fire, or if other dangerous

conditions including poor design or defective technology contributed. That only those

company men on board the boat at the time of the fire were charged highlights the jury's

assumption that the disaster was the product of the reckless behavior preceding it rather

than any latent dangers.

In the subsequent grand jury investigation, the judge ordered the jury to take into

consideration the boat's condition and management along with evidence of racing, but

still made racing sufficient evidence for conviction.[79] The judge asked the jury to

evaluate the case based on the 1838 Steamboat Act, which made steamboat operators

whose actions were deemed reckless and had contributed to loss of life guilty of

manslaughter, as well as a New York state law which stipulated financial penalties for

anyone "creating or allowing to be created an undue or unsafe quantity of steam for the

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[79] *Evening Post,* September 8, 1852.

purpose of excelling any other boat in speed."[80] In other words, racing was proof of

recklessness, rendering other considerations moot.

Of course, none of this precluded steamboat racing's continued appeal. The

popular prints made by Currier and Ives of famous races and the nostalgia of Twain are

enough to demonstrate that racing could still excite audiences as displays of speed and

power, and the thrill of potential danger may have even added to the allure, at least until

disaster actually happened. Speed prompted admiration and awe, but when it could be

called excessive, speed prompted revulsion, not at the fact of high speed itself but at the

human behavior that led to mishandling speed. When the public discussed the issue of

speed in the aftermath of steamboat disasters, their critiques were not of technology but

of human flaws and ambitions. Speed was safe and desired, and only human recklessness

could make it dangerous.

As with steamboat disasters, American responses to rail accidents reinforced the

notion that the speeds achievable through steam technology were safe under the proper

conditions. Though charges of recklessness arose, the absence of a racing culture in the

railroad industry made claims of excessive speed more difficult. Speed on steamboats had

tangible benefits, but racing had also made it thrilling – a spectator sport. With railroads,

their unmatched speeds were a source of amazement, but that amazement related entirely

to the practical advantages – railroads achieved their speeds for the purpose of efficient

transport. In the case of railroads, then, accidents linked to unsafe speed turned public

attention to material and incidental factors – poor track conditions, not enough employees

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[80] *Evening Post,* August 3, 1852.

on the track, mechanical problems, weather issues or obstacles on the road – which were more obvious to the untrained observer than those contributing to steamboat explosions. Even more than with steamboats, speed absolutely contributed to and made more destructive the common accidents that happened to trains – derailments and collisions. Nevertheless, industry and regulatory efforts reflected the public's concern and sought not to reduce speeds but to make higher speeds consistently safer. With consistent improvement of external conditions, trains could theoretically be made safe at any speed.[81]

When speed was a factor, blame typically fell on operators who were expected to slow trains when conditions demanded it. After an Erie Railway train derailed off a cliff on April 15, 1868, the train's "extraordinary speed" came under fire. An engineer testified that the train was traveling between twenty-five and thirty miles per hour when it derailed. In an earlier report, however, the railroad's superintendent stated that several months of severe winter conditions had necessitated slower travel, about twelve to fifteen miles per hour, over the worn-out and rotted sections of track. "We can not and do not attempt to make the schedule time with our trains," the superintendent said; "nearly all lose from two to five hours in passing over the road, and it has been only by the exercise of extreme caution we have been able thus far to escape serious accident." Rather than arrive late, the conductor testified that he had made up time, as he was free to do at his discretion, and said he did not believe it dangerous to "run twenty-five miles an hour

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[81] Robert Reed attributes the rise of major railroad accidents in part to excessive speed. Mark Aldrich counters this idea, saying that while speed could and did make what might have been minor accidents into major ones, the rise in major disasters (killing more than six) is likely more a sign of increased traffic and trains carrying more passengers and, in fact, overall safety was likely improving. Robert C. Reed, *Train Wrecks: A Pictorial History of Accidents on the Main Line* (Atglen, Pennsylvania: Schiffer Publishing, 1997); Aldrich, *Death Rode the Rails,* 38.

around that place." The coroner's jury disagreed, concluding that the derailment would not have happened "had the train run at less speed, owing to the unsafe condition of the road."[82]

A *Harper's Weekly* editorial criticized the Directors' neglect and the conductor's recklessness, arguing they deserved "the moral reprobation of the community."[83] And yet both the jury's verdict and the editorial treated high speed only as a circumstantial danger. In this narrative, it was only the broken and rotten rails that made a typical rate of travel suddenly dangerous, as the same speed would have been perfectly safe under normal road conditions. A similar explanation emerged for an 1882 collision at the Spuyten Duyvil stop on the Hudson River Road. The direct cause of the destruction was that one train traveling at high speed ran into another stationary train, crushing passengers and upsetting internal stoves that started fires and burned other trapped passengers. Newspapers focused on "an almost total absence of attempt to flag the approaching train." Signaling methods were in place to provide ample response time, and they had not been implemented. Once again, then, decisions by human operators and an inadequate signal system were the expressed source of the problem, making a safe technology unsafe.[84]

This common response to rail disasters reveals the extent to which railroads relied on careful human operation to maintain safety. Much more than steamboat travel, trains running at high speeds and making frequent trips, often over the same tracks, required a well-organized system with precise schedules and intricate communication techniques, all

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[82] *Harper's Weekly,* May 2, 1868.
[83] *Harper's Weekly,* May 2, 1868.
[84] *Frank Leslie's Illustrated Weekly,* January 21, 1882.

controlled by human operators.[85] The details of the Spuyten Duyvil crash capture well the

complexity of the rail system and the hazards of running off schedule. Newspapers

recorded that the Atlantic Express train was due in New York at seven o'clock but left

Albany thirty-five minutes late. Though it made up much of the initial delay, the train

stopped again just after Spuyten Duyvil for about six minutes to repair a broken air brake.

Meanwhile a local passenger train had left Tarrytown at 6:35, passed Spuyten Duyvil at

7:07, and soon crashed into the stopped express train at full speed.[86]

Similar circumstances caused a collision near Revere, Massachusetts, in 1871. An

accommodation train left Boston at 7:50 for Beverley, twenty minutes behind schedule. A

second express train headed to Bangor was scheduled at eight o'clock, but left Boston at

8:05. The accommodation train had just dropped off a few passengers at the Revere

station and started again when the express train flew around a corner and crashed into the

rear passenger car, killing at least twenty people instantly. Several more died from

scalding or burning in the ensuing fires. Thus, the combination of high speed travel and

the danger of collision meant that a world of travel precisely ordered by time was a

necessity. This had several important consequences. First, it placed greater responsibility

in the hands of brakemen, engineers, signalers, and other railroad operators, increasing

the likelihood that they would be deemed culpable in the event of an accident. It also

encouraged faster speeds. Unlike with steamboats, making up time from delays or late

departures rarely received criticism, because running off schedule was so often a source

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[85] Development of the railroad system is best explored in Alfred D. Chandler, *The Visible Hand: The Managerial Revolution in American Business* (Cambridge: Harvard University Press, 1977). Also see Richard White, *Railroaded: The Transcontinentals and the Making of Modern America* (New York: W. W. Norton & Company, 2011).

[86] *Frank Leslie's Illustrated Weekly,* January 21, 1882.

of disaster. Timeliness and the high speeds sometimes required to maintain it were necessary for greater safety.

Lower speeds were occasionally recommended, but as in the Erie Railway accident the suggested restrictions were often temporary or seasonal in nature, based on dangerous external conditions like weather. A *Harper's* editorial written after an accident on the Lake Shore Railroad in the winter of 1868 argued that during extreme cold, when the rails were brittle, "a very different rate of speed should be enforced." The writer even pointed out that "an accident which is horribly destructive when a train is flying at thirty or forty miles an hour is very sure to be comparatively unimportant when the speed is reasonable."[87] That notion was incontrovertible, and could have materialized into an argument for permanent mandated speed restrictions. Even though engineers steadily improved braking technology over the second half of the century, both the rate and damage of collisions rose steadily, because of the increased weight of trains but also because of increasing speeds. Top train speeds rose from 20-30 miles per hour in the 1850s and 1860s to 50-60 miles per hour by the 1890s. Higher speeds undoubtedly led to many disasters. In 1892 *The Railroad Gazette* ran experiments that proved increased speed disproportionately increased required braking distance; a train going twenty miles per hour stopped at 179 feet while a train going double the speed, forty miles per hour, took 539 feet, or about three times the distance, to come to a halt.[88]

Examples of limitations on railroad speed were available. "There are railroads in Europe upon which there have never occurred any serious accidents," one writer noted. Perhaps speed was the difference, the writer suggested, offering the explanation that on

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[87] *Harper's Weekly,* January 4, 1868.
[88] Aldrich, *Death Rode the Rails,* 71-76.

the railroad from St. Petersburg to Moscow the Russian Government limited speeds to twenty miles per hour. Rejecting the idea "that Government should manage our roads," the writer quickly dismissed such a sweeping, restrictive reform.[89] The reluctance for significant regulation of railroads in the United States has been well-documented. Scholars have explained that even as regulation increased in the late nineteenth century it was typically "soft" regulation that urged railroad companies to adopt safety measures rather than mandating them. Also, as much as American culture valued speed, limiting the pursuit of ever-higher speeds would certainly have been unwelcome to passengers as well as companies.[90] Overlooked, but just as significant a factor in the comparatively lax regulation of American railroads, was the logic developed in response to rail disasters – that they were products of external conditions rather than high speed. That response enabled a theoretically unlimited advancement of speed because it suggested that there were ways of improving safety that did not infringe upon the beneficial speed and convenience of modern travel. If companies refined human operation of trains and made technical improvements to machinery and rails, speed could keep increasing without an associated increase in danger.

Americans looked for numerous ways to eliminate danger and maintain speed, as demonstrated by an 1868 editorial entitled "Easy Prevention of Railway 'Accidents'."[91] The writer specifically mentioned the recent horrific derailment at Angola, New York,

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[89] *Harper's Weekly,* January 11, 1868. For differences in early railroad regulation see Colleen Dunlavy, *Politics and Industrialization: Early Railroads in the United States and Prussia* (Princeton: Princeton University Press, 1994).

[90] These factors contributing to the slow and limited nature of American railroad regulation are explored in Steven W. Usselman, *Regulating Railroad Innovation: Business, Technology, and Politics in America, 1840-1920* (New York: Cambridge University Press, 2002), as well as Aldrich, *Death Rode the Rails,* especially Chapter 3.

[91] *Frank Leslie's Illustrated Weekly,* January 18, 1868.

and alluded to others as tragedies that a few simple reforms could have easily prevented. Among these fixes, the writer included double-flanged car wheels to prevent breaking, stronger coupling of cars to avoid rear cars swinging loose and flying off the track, brakes under the control of the conductor rather than often neglectful brakemen, and so on. According to such commentary, railroad disasters did not reveal some major flaw making modern travel dangerous; the problems were obvious and the fixes – well-maintained rails, small design changes, competent employees – were simple. In England, the writer noted, "cars are coupled together with powerful compression, and are consequently free from the annoyances and dangers of oscillation, even when at the highest rate of speed." In the Angola disaster, the train traveled nearly half a mile with the wheels off track before coming to a stop; but "with proper brakes, under perfectly feasible control, it could have been and ought to have stopped within two hundred feet." High rates of speed, a braking distance of two hundred feet – these were the necessary conditions of modern travel, deemed safe when basic precautions were taken. This was the pattern that continued through the rest of the century. The various small safety measures suggested by experts, required by legislation, and eventually adopted by railway companies were all designed to ensure that high speeds remained safe.

After his travels through the United States in the 1830s, relying in part on steam transportation, Alexis De Tocqueville reflected on American progress and the potential American future:

> The Americans contemplate this extraordinary progress with exultation; but they would be wiser to consider it with sorrow and alarm. The Americans of the United States must inevitably become one of the greatest nations in the world;

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their offspring will cover almost the whole of North America; the continent that they inhabit is their dominion, and it cannot escape them. What urges them to take possession of it so soon?[92]

De Tocqueville was not speaking of steam transportation, but he might as well have been. In the nineteenth-century United States, speed became a national obsession, created by a need and desire to conquer the vast distances of the continent and fed by technological advancements that made greater speeds seem constantly in reach. That obsession met a significant obstacle in the pattern of disasters on steamboats and trains. Disasters forced Americans to contemplate more than just the treasured effects of this transformative innovation. Though a broad cultural critique of Americans' desire for speed and progress emerged, that discourse explained steamboat and rail disasters as the products of other attendant forces. Americans identified human operators and external conditions as the culprits that occasionally made speed unsafe while maintaining an enduring faith in the safety of the speeds steam technology permitted. Americans turned their energies to limiting the dangers of modern travel while maintaining speed as its most fundamental feature. In regard to speed, then, Americans tended toward exultation more than sorrow and alarm. In spite of this, these moments of cultural introspection were not without influence. In debating speed, Americans recognized that even though progress was worth pursuing, its unlimited pursuit was untenable, and a society that better balanced speed and safety was perhaps within reach.

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[92] Alexis De Tocqueville, *Democracy in America: Volumes I & II,* trans. Henry Reeve (The Floating Press, 2009), 371.

Chapter Six:
The Rights of the Traveling Public

The September 16, 1865, issue of *Harper's Weekly* included a strongly-worded

editorial addressing the incessant pattern of railroad accidents plaguing American

travelers. Published a month after a deadly collision on the Housatonic Railroad in

Connecticut and just a few weeks after another on the Long Island Railroad, the article

expressed frustration over the apparent lack of concern for human life evidenced by such

disasters. The "first and obvious purpose" of railroads, the writer said, "is the safe

transport of passengers," a purpose at which they were clearly failing. Addressing readers

across the nation, the writer said, "let every reader bring it home to himself. Let him

imagine that he sees his wife's, his mother, his child's name in the list of massacred."

The issue affected all public travelers, and they would not be silent. "It is clear that if the

law and public opinion do nothing to right railway passengers they will right themselves.

We are a tame public in such matters, but at last people will not consent to have their

wives and children and friends crushed and mangled." The writer suggested that

passengers would "constitute themselves a committee for their own safety." It would be

the public's responsibility and the public's right to halt the overwhelming dangers and

secure their own safe conveyance. The headline at the top of the article, printed without a

question mark, accentuated the assertive statement: "How Shall We Save Ourselves."[1]

The *Harper's* editorial reveals a particularly significant response and adaptation

of Americans to the deadly transportation disasters that continued throughout the

nineteenth century, one focused on the concept of "the traveling public." The notion of a

traveling public – a collective body made up of all Americans who traveled on public

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[1] *Harper's Weekly,* September 16, 1865.

conveyances – was a product of the emerging system of mass, public transportation. The changing nature of transportation in America, dominated by the effects of steamboats and trains, invested the modern identity of the traveler with particular meaning and shared experiences, and danger was among the most prominent. In the aftermath of steamboat and train disasters, the imagined body of the traveling public often became real, as citizens met in person and debated in print possible solutions to one of the troubling issues of the time. With an understanding of steam-related dangers created by various public responses to disasters, Americans acknowledged their shared susceptibility to death on rivers and rails and claimed a collective authority as travelers to intervene in the matter of public safety. As Americans expressed their concerns publicly they increasingly did so on behalf of a broadly affected traveling public.

In the effort to "Save Ourselves," Americans identified transportation on steamboats and trains as a public service and travelers as consumers with the expectation of safe conveyance. As they responded to disasters, Americans developed a clear vision of their rights as travelers and as citizens of the republic, combining the two identities into one fit for a modern technological United States. The conversations of the traveling public drew their force from highly visible disasters and their victims and the dominant perception of steam's dangers. As the transportation system grew more intricate and railroad companies became more powerful, this discourse cast the individual human traveler as the paramount concern of mass, public transportation. Working with the tools of representative government and the press, Americans in the nineteenth century fashioned themselves as an activist traveling public that, joined with a vigilant press, could counter the dangers of steam and ensure the safety of modern travel.

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The term "traveling public" began to show up in American newspapers in the early 1820s, at the start of the steam era. Early on the group was invoked in discussions of stagecoach travel as well as in advertisements for hotels. References to the traveling public spiked in the 1830s and 1840s, when steamboat travel was dominant and railroad travel was emerging, and rose continually throughout the century. In the late 1830s, alongside a rise in large-scale steamboat disasters like the *Moselle* explosion, the term began appearing frequently in stories and editorials on steamboat and rail disasters. More often, newspaper articles spoke of the traveling public when they commented on or advertised tourism and comfortable travel, identifying, for example, destinations the traveling public might enjoy and rail lines in which they might find the most pleasure.[2]

The concept of a traveling public, a sector of Americans united by their identities as travelers, was the product of a new form of travel – the type of modern, mass transportation that developed fully with steam power. Steamboats and trains not only expanded mobility and quickened the pace of travel, they also altered the nature of travel itself in a number of significant ways. Perhaps the most radical transformation was the extent to which the speed and power of steamboats and railroads reshaped the experience of movement. Wolfgang Schivelbusch writes that steamboats, and trains even more so, destroyed the "mimetic" relationship between traveler and landscape. Travel by earlier modes of transportation that depended on natural forces like wind and current or animal power forced travelers to follow the dictates of the landscape, but steam powered boats

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[2] These observations come from a sampling of results obtained searching the phrase "traveling public," or alternately, "travelling public," in the Readex database *Early American Newspapers, 1690-1922*. My search, though not exhaustive, found no uses of the phrase prior to 1820.

and trains against the current and up hills, meaning travel was much less restricted by natural limits. The high speed of railroads also disoriented early travelers, making it difficult to see and comprehend the space that had been passed over. Separated from the physical experience of movement and lacking control over their mobility, railroad passengers frequently compared themselves to packages being shipped across the land.[3]

The sense of control over space and natural forces that steam technology created contributed to what Will Mackintosh calls the "commodification of travel." Before the nineteenth century, he notes, inland travel over long distances was improvisational. Individual travelers largely produced their own travel experience, securing a means of transportation, finding a guide or learning a route, and obtaining the various provisions needed for the journey. Beginning with stagecoach travel but especially with steamboats and trains, travel became a service individuals purchased and an experience directed and controlled by others.[4] On steamboats and trains, travelers became *passengers* – consumers of travel carried around the country at the will of the technology and its operators. Whereas long-distance journeys had once been idiosyncratic and irregular, technology and commodified travel allowed greater replicability of results – a quality advertised to travelers directly and indirectly through timetables and posted rates of speed.

These changes in the character and design of the individual's travel experience aligned with a shift in the way people traveled in relation to one another. Rather than traveling on horseback or stages alone or with a few close travel companions, Americans

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[3] Wolfgang Schivelbusch, *The Railway Journey: The Industrialization of Time and Space in the Nineteenth Century* (Berkeley: University of California Press, 1986), 9-10; 54.
[4] Will Mackintosh, "'Ticketed Through': The Commodification of Travel in the Nineteenth Century," *Journal of the Early Republic,* 32, 1 (Spring 2012), 61-63.

in the nineteenth century increasingly traveled among strangers on steamboats and trains. Steam travel was mass travel, typically marked by anonymity. Mass travel was also more democratic than earlier modes. Steam-powered transportation increased the number of travelers and also expanded the types of people who could travel. Even though steamboats had separate pricing levels for deck versus cabin travel, and railroads quickly separated classes and races into different train cars, steam travel expanded access to long-distance mobility and brought Americans from all walks of life together in the same boats and trains.[5]

Finally, the mass, fairly democratic nature of steam travel derived from its public character. Steamboats and trains were not designed as private machines to be owned or chartered by individuals for personal travel, but rather as public conveyances, meant to make up a national transportation system and theoretically open to any who could afford the price of a ticket. Public transportation meant that travelers, instead of driving themselves, were carried as passengers among large numbers of others unknown to them and often of different social station. Until the advent of the personal automobile, these qualities defined modern travel. The concept of the traveling public could only arise out of this mode in which diverse Americans shared common experiences and expectations of travel. Rather than a personal matter, travel in this form was a public, collective practice. The nature of public travel, then, meant the construct of the traveling public could be applied to practically any situation faced by American travelers in the nineteenth

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[5] Fascinating analyses of the social experience inside nineteenth-century trains appear in Schivelbusch, *The Railway Journey,* 80-88, Amy G. Richter, *Home on the Rails: Women, the Railroads, and the Rise of Public Domesticity* (Chapel Hill: University of North Carolina Press, 2005), and Patricia Cline Cohen, "Safety and Danger: Women on American Public Transport, 1750-1850" in *Gendered Domains: Rethinking Public and Private in Women's History,* eds. Dorothy O. Helly and Susan M. Reverby (Ithaca: Cornell University Press, 2012), 109-122.

century. As disasters abounded, the rhetoric of the traveling public became integral to discussions of the dangers of steam transportation.

As demonstrated by the various printed and visual responses they provoked, steamboat and rail disasters, unlike so many smaller accidents and tragedies, were *public* disasters. By nature, an accident aboard public transportation involved often large numbers of individuals of different stations, generating a wide circle of those directly affected. Because travelers were solely passengers and not drivers, disasters affected them collectively and created a shared enemy out of the forces that had directed their movement – sometimes steam technology, and more often the operators and owners of steamboats and rail lines. These disasters were also public because they were technological. As already shown, technological disasters produced a distinct response that challenged traditional ways of interpreting danger. Steam disasters demanded public discussion because they could not simply be attributed to the mystery of divine power. Instead, steamboat and rail disasters involved complex technologies, multiple possible causes, as well as human engineers and operators whose actions might warrant blame, and they inspired a belief that the problems at the root of the danger could and should be fixed. The United States' expansive print culture enhanced the disasters' public quality by identifying a national pattern of danger that provided the context for each new accident. Though the concept of the traveling public was invoked in numerous situations, steamboat and rail disasters, unlike anything else, created a reason for that public to meet, actually and virtually, and to conceive of itself as a collective body with specific concerns.

Public organization and action started at the local level. Major steamboat disasters tended to hit river towns particularly hard because those towns often witnessed disasters and because their citizens were invested in steamboats for both travel and business. The residents of towns closest to steamboat disasters became participants in the event when they aided rescue operations, housed the injured, and mourned the loss of fellow local citizens.[6] Having already come together to provide assistance in the immediate aftermath of disaster, affected citizens often assembled publicly to produce a more formal response. After the *Ben Sherrod* burned in June 1837, residents of nearby Natchez, Mississippi, formed a committee to investigate the accident and held a public meeting in the town court house to issue the committee's report. Public meetings like this were a frequent second step for affected communities, moving from a recovery effort focused on a specific event to an organized response to a broader problem that demanded public action.

In a number of resolutions, the citizen committee in Natchez contextualized the *Ben Sherrod* disaster within a threatening pattern of danger and outlined a plan for community action. The "sympathy and alarm of this community have been excited," the committee noted, by "the most appalling and heart rending disasters occurring on the Mississippi river," events that had "become, and are every day becoming, common occurrences." In the *Ben Sherrod* fire the committee saw evidence of a pervasive danger that "every moment" threatened the "many thousands travelling these waters." Steamboat racing in particular received the committee's censure as not only a danger to travelers but actually "an infringement on their rights." The committee failed to explicate what exactly

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[6] The participation of local citizens in disaster relief is discussed in Chapter Two.

were those rights, but the vague assertion of traveler rights justified the call for legislative protection. The time had come to "call up the active exertions of all persons interested… to produce a change in the system." The citizens issued a memorial to the state legislature to consider legislation to combat the evil, and, recognizing the regional scale of the problem, recommended that neighboring states undertake similar legislation as well. If the problems could not be solved on the state level, the committee suggested that a memorial be sent by the legislature to the United States Congress. Finally, the committee resolved that "the proceedings of this meeting be published in the city papers" and in journals published across the region.[7]

Similar public meetings took place in Cincinnati and Boston after the *Moselle* explosion in 1838 and the *Lexington* fire in 1840. Within a day of the *Moselle* disaster the mayor of Cincinnati called a meeting of citizens to consider appropriate actions. The assembled group formed committees of three from each city ward to investigate and publish a statement on the disaster, as well as a separate committee of five to examine possible causes of the explosion and to report "preventative measures as may be best calculated hereafter to guard against like occurrences."[8] The citizens then requested that Congress consider the subject of steamboat dangers for federal legislation. A few weeks after the *Lexington* burned, citizens of Boston met at Faneuil Hall and asked the mayor to chair a discussion of the disaster. Those present passed a number of resolutions; some addressed specific issues of the *Lexington,* notably the transport of combustible freight like cotton, while others referred to the larger pattern of steamboat disasters "in various

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[7] *Albany Argus,* June 6, 1837.
[8] *Cincinnati Daily Gazette,* April 28, 1838.

parts of the United States."[9] The group called on the state's senators and representatives to address the subject in Congress, and like the Natchez citizens, recommended the same be done in other states.[10] In the view of the Boston citizenry, the *Lexington* disaster was not an isolated problem; danger plagued steam travel, "against the consequences of which every man is interested to ensure a protection."[11]

Such meetings represented the emerging body of the traveling public in its actual and most fundamental form: citizens assembling in physical space, addressing their common concerns as travelers, and publicly working for safer travel through the tools of representative government. The meetings acknowledged the shared interest the town's residents had with other affected communities around the region and the nation. As assembled citizens produced reports and drafted resolutions, they reified the concept of a broad traveling public. Individuals who were appointed as or seized the position of spokesmen embraced the identity of the traveler, claimed equality and shared interest with other travelers, and asserted the authority of citizens over issues related to safety and public transportation.

The committee of five formed to investigate the *Moselle* explosion brought together scientists, engineers, and steamboat captains, and their report is primarily a scientific and technical document. Dr. John Locke, a scientist and author of the report, performed numerous experiments on boilers and provided designs for potential safety equipment. He also emphasized the need for greater technical education for engineers and

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[9] *New York Spectator,* February 13, 1840.

[10] *Zion's Herald,* February 5, 1840.

[11] This kind of local organization and the effort of various communities to engage the federal government reflect what Brian Balogh calls a "central dilemma in American political development – how to hold distant public officials accountable." Brian Balogh, *A Government Out of Sight: The Mystery of National Authority in Nineteenth-Century America* (New York: Cambridge University Press, 2009), 6.

steamboat captains. The committee completed the report at the same time as the passage

of the 1838 Steamboat Act, and while the authors approved of the act's requirements for

inspection and owner liability, they argued for further legislation to improve boiler

construction and educate engineers on safe boiler operation. Though the document's

content was largely technical, it was framed with rhetoric that emphasized a public role in

the process of reforming steamboat travel. Notably, the report was published "by request

of the citizens of Cincinnati." Initially, the committee requested that the City Council

publish the report, but according to a statement from Locke, the Council declined

publication, objecting to a part of the document in which Locke cited facts "to show the

impositions practiced on travellers, and the caution necessary on the part of the public in

exacting evidence of the adoption of safety measures." The exact nature of the City

Council's objections is unclear, but Locke's statement reflects the report's implicit claim

of public authority in the matter of steamboat safety.[12]

The citizenry of Cincinnati reinforced that authority in a letter to Locke requesting

release of the report for citizen publication. A group of prominent Cincinnatians, among

them a young future city councilman named Salmon Chase, noted the "high degree of

excitement in the public mind" caused by the *Moselle* disaster and "numerous" others.

The citizens of Cincinnati, and of other cities along the western rivers, had a particular

interest in steam travel, and thus, they said, it was necessary "that *here,* upon the scene of

one of the deepest of these tragical events, some attempt should be made to arrest the

evil." When Locke responded and presented the report for publication, he reiterated the

point: "It must be done in Pittsburgh, Cincinnati, Louisville and St. Louis… No part of

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[12] "A Report on Explosions and the Causes of Explosions, with Suggestions for Their Prevention"
(Cincinnati, 1838), 70-71; 10.

the earth has more interest in the subject of Steam navigation than the cities just named, and the world, already in horror at our frequent and terrible disasters, has a right to expect at least an effort from us to 'arrest the evil.'" As John Brockmann demonstrates with his deep analysis of the Cincinnati committee's report, this published response was a product of a particular scientific community and intricate local politics.[13] Looking at the response in relation to a larger pattern and network of disasters, though, it becomes clear that the report also represented something more – an emplacement of the *Moselle* disaster within a regional and national pattern and an identification of Cincinnati's affected citizens and their cause with an extra-local effort at reform. The citizens of these cities and the region, the report suggested, were united not just by their investment in steamboats but by their collective experience with the horrific disasters that occurred so close to home. As a voice for that body, Locke felt a strong sense of public duty and described his compulsion to "sacrifice something to suffering humanity."[14] Locke envisioned himself as a servant to both a local citizenry and a larger traveling public seeking significant reform.

A similar sensibility emerged from the meeting of Bostonians at Faneuil Hall after the *Lexington* disaster, as reflected in a letter written to Daniel Webster by a participant in the meeting, Henry Russell Cleveland. Cleveland's "letter" (it totaled more than forty pages) included lengthy quotations of witness testimony along with commentary on possible causes and potential safety measures. The letter was printed by a Boston publisher, its title page stating simply, "By a Traveller." Cleveland cast himself as an anonymous representative of the traveling public, and he referred to the interests and

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[13] R. John Brockmann, *Twisted Rails, Sunken Ships: The Rhetoric of Nineteenth Century Steamboat and Railroad Accident Investigation Reports, 1833-1879* (Amityville, New York: Baywood Publishing Company, 2005), Chapter 3.
[14] "A Report on Explosions," 11; 17; 9.

responsibilities of that body throughout his discourse. The *Lexington* fire was a "solemn warning to those who now travel in steamboats," Cleveland averred. Echoing the statements made at the public meeting, Cleveland described in stark terms an unmistakable pattern: "the ignorance of the existence of danger has passed away," he wrote, adding that danger threatened all travelers. In the close of his letter, Cleveland referred to "the thousands who have perished by the frightful accidents of travel in this country," and "the thousands more, who, I fear, are yet marked to die."[15] This statement was not unlike the warnings ministers preaching on the *Lexington* disaster were giving their congregations of the universal susceptibility to death in such circumstances.[16] Cleveland linked current travelers with disaster victims and invoked a future that would surely include many more victims. For Cleveland, though, the probability of more tragic steamboat deaths derived not from mysterious divine power but from the deeply rooted dangers of steamboat travel that threatened passengers similarly across the country every day. Reflecting the shifting mentality on disasters and their causes, Cleveland's letter was a call for decisive, tangible action.

Though distressed by the threats facing the public, Cleveland, like Locke, was ultimately confident in the possibility of reform, and he charged the public with the task of sparking change. "Travellers must remember," he wrote, "that if they don't assert their own rights, no one will do it for them." Cleveland saw extraordinary power in the public voice: "The only law which the Company will reverence is the law given by the public… The only committee, whom they will listen to, is the public who travel." Cleveland

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[15] Henry Russell Cleveland, "Letter to the Hon. Daniel Webster, on the Causes of the Destruction of the Steamer Lexington…" (Boston: Charles C. Little and James Brown, 1840), 30-33; 44, American Antiquarian Society.
[16] See Chapter Four.

recognized the challenges; cheap fares and "a superior degree of swiftness" tended to "stifle the sense of danger," but public silence was no longer an option.[17]

Cleveland's letter modeled one way in which concerned travelers learned to speak – through democratic assembly and conscious appeal to republican government. The "Traveller" closed his letter to Webster by entrusting the senator with "the cause of travellers in this country" and entreating him, "and all who have it in their power," to enact laws to protect public safety.[18] Of course, Congress had done just that two years earlier with the 1838 act, the title of which – "An Act to provide for the better Security of the Lives of Passengers on Board of Vessels propelled in whole or in part by Steam" – explicitly aimed at public safety. The landmark legislation, enacted after more than a decade of investigation into the subject, was in part a response to the public outcry reflected in newspaper debates and formal complaints by local committees. As Cleveland's plea further demonstrates, however, the frequency and intensity of steamboat disasters and calls for legislation increased after 1838, and most interested parties soon considered the law a failure.[19] A report produced by the New Orleans Chamber of Commerce in 1851 on the subject of continued steamboat explosions commented on the 1838 law, noting that by 1840, the Senate's Committee on Commerce had said the law "falls far short of shielding the public from these disasters."[20] Another spike in steamboat disasters in 1852 brought forth repeated urgings for congressional action and finally forced discussion of a new, stricter, steamboat bill. Disasters like the burning of the

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[17] Cleveland, "Letter to the Hon. Daniel Webster," 37; 43-44.
[18] Cleveland, "Letter to the Hon. Daniel Webster," 44.
[19] See Chapter Two.
[20] "Report and Resolutions Adopted by the New Orleans Chamber of Commerce…" (New Orleans: Printed at the Office of the Picayune, 1851).

Henry Clay, one concerned citizen said, "must awaken Congress to realizing a sense of the glaring dangers that beset the travelling public."[21] Another newspaper responded to the *Henry Clay* with hopes that Congress would act on the bill being considered; "the country looks to their wisdom and humanity for a measure that will give ample protection to the whole travelling community of the United States."[22]

On August 30, 1852, Congress passed the "Act to Amend an Act entitled 'An Act to provide for the better Security of the Lives of Passengers on Board of Vessels propelled in whole or in part by Steam.'" The 1852 act was specifically aimed at passenger safety, and in fact only applied to passenger boats. The most significant additions included new limits on maximum steam pressure, a more rigorous inspection system overseen by a new expanded inspection service, stipulations requiring safety equipment like fire hoses and lifeboats be carried, and defined rules for passing other boats and for carrying combustible materials targeted at preventing collisions and fires. The act also provided for more extensive training and licensing for engineers and pilots, along the lines that the citizen committee reporting on the *Moselle* explosion had suggested.[23]

In their various efforts to advocate for steamboat legislation, individual citizens, citizen committees, and members of the press consistently used the concept of the traveling public to describe the steamboat issue as a national concern that threatened the American citizenry as a whole. With its legislative actions, the United States Congress further legitimized the traveling public as a collective body. The 1838 and 1852 acts were

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[21] *Daily National Intelligencer,* August 7, 1852.
[22] *Weekly Herald,* August 7, 1852.
[23] Louis C. Hunter, *Steamboats on the Western Rivers: An Economic and Technological History* (Cambridge: Harvard University Press, 1949), 537-539.

the federal government's first efforts to regulate private industry for the purposes of

public welfare, an adaptation to the particular features of mass, public transportation.[24]

Designed specifically to protect passengers on steamboats, the laws implicitly recognized

a new category of consumers with particular rights that required government protection.

Assembly and appeals to representative government constituted one avenue for

the public to air its grievances. The other significant public tool was the press. Even as

they gathered in meeting halls in towns across the country, citizens affected by steamboat

disasters recognized the power of the press as a means to propagate their message and

shape public opinion. The residents of Natchez made sure their resolutions would be

published in local and regional papers after the *Ben Sherrod* disaster, and after the *Henry*

Clay burned, survivors met and expressed faith in the role of the press. "I think the only

power to which we can apply for redress is to the Press," one survivor said, asking that

"the editors of our respectable journals would publish the names of such vessels as are

addicted to racing" and hold them up to public censure.[25] In this effort to expose injustice

and bring publicity to the apparent dangers of travel, these local groups anticipated what

would become a dominant national strategy in the second half of the century.

The citizens who met publicly in the aftermath of nearby steamboat disasters

asserted their collective power over their own travel and their own safety and also

imagined a more broadly-conceived traveling public that was similarly concerned. When

newspapers published the proceedings of these meetings, they extended the conversation

to a larger imagined public that could only meet in print. Already the means by which

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[24] See John G. Burke, "Bursting Boilers and the Federal Power," *Technology and Culture,* 7, 1 (Winter, 1966), 9-10.
[25] *Evening Post,* July 29, 1852.

Americans learned of the dangers of steam power, newspapers also quickly became the virtual meetingplace of the traveling public, where citizens debated with each other and with industry insiders the issue of public safety on steam-powered vessels.[26] For over a month following the *Lexington* fire, for example, Washington's *Daily National Intelligencer* published letters to the editor from two writers who simply went by "S." and "J.E.D." in which the two engaged in a spirited and biting debate over the meaning of the disaster. While S. defended the company and suggested passengers were aware of the risks they faced, J.E.D. blamed the disaster on the recklessness of the *Lexington*'s owners and operators, arguing that "those who fly by steam have a right to see that they fly safely."[27] Letters to the editor printed in newspapers, often anonymous or only signed as "a passenger," elevated public voices and suggested to readers that concerns about danger were widely-held. Newspapers were a site where the opinions of the public gained authority and resonance; public statements blaming steamboat officials often forced responses, as when Captain Alton wrote to the *Times Picayune* to address publicly the citizens of Natchez after their meeting had laid out his supposedly careless actions.[28]

Newspaper reports and editorials echoed the idea of a victimized traveling public put forth by local committees and made it an oft-repeated national message: the lives of all travelers were endangered by the current state of steam-powered transportation in the United States. It was a message that aligned with the interpretations of disasters being put forward in disaster narratives and printed sermons. By midcentury the various printed

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[26] The theoretical concepts that help explain this trend are in Benedict Anderson, *Imagined Communities* (New York: Verso, 1983) and Jürgen Habermas, *The Structural Transformation of the Public Sphere: An Inquiry into a Category of Bourgeois Society* (Cambridge: MIT Press, 1989).
[27] *Daily National Intelligencer,* January 27, 1840.
[28] *Times Picayune,* June 2, 1837.

responses to steam disasters had already identified a reading public that was universally affected by these dangers and had made the visual scenes and potential meanings of those disasters intelligible. Newspaper articles invoking the traveling public took advantage of these mutually understood realities: "we notice so many accidents from sheer carelessness on steamboats and railroads… so many scenes revolting to humanity… that some imperative legal enactments are loudly called for," read an editorial following the *Ben Sherrod* disaster. "Who can think of the awful calamities" of the previous few months, the writer said; "who can call to mind the sudden deaths and mutilated limbs… and not feel a lively concern for the passage of some statute by which indirect murderers might be reached and punished?"[29] Much as sermons and narratives rhetorically united readers with victims, editorials identified readers as travelers and emphasized their shared susceptibility to disaster. "Who among us are secure from the like distressing calamity," an initialed writer said after the *Henry Clay*; "these appalling catastrophes are becoming quite too frequent and alarming of late to be longer tolerated in silence."[30] Print had exposed Americans to the threat of steam-related dangers and also gave voice to an aggrieved public with common concerns and an interest in sparking reform.

Even after more expansive and stringent legislation, steamboat disasters continued, and even as steamboat traffic was increasingly lost to railroads, the next decades included some of deadliest steamboat disasters the nation had seen.[31] Starting in

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[29] *Times Picayune,* June 27, 1837.
[30] *Daily National Intelligencer,* August 7, 1852.
[31] These include, for example, the 1852 collision of the *Atlantic,* killing a couple hundred Norwegian immigrants, explosions on the *Pennsylvania* and *Princess* in 1858 and 1859 that both killed more than one hundred, and of course the massive disaster of the *Sultana,* killing near two thousand in 1865.

the 1850s, large-scale railroad accidents joined steamboat disasters killing American travelers in significant numbers.[32] The middle of the century marked an era when both forms of transportation were active and shared dominance.[33] Disasters were common on both steamboats and rails, and public dialogue about the threat to travelers increased accordingly, frequently combining steamboat and rail accidents into a general problem. The concept of the traveling public made the connection between steamboat and train disasters an obvious one. Though newspapers often discussed steamboat and rail travel separately when it came to other issues of travel, the dangers of the two transport modes were often addressed together. An editorial in *Frank Leslie's Illustrated Newspaper* asked in 1856, "Will not the rapidly increasing chapters of terrible accidents on railways, and on our rivers and lakes secure us, the travelling community, efficient laws for our protection?"[34] Responses to rail accidents echoed earlier notions of an endangered public that needed protection. "It is not alone of this frightful murder that we would speak," another *Leslie's* article read after an 1859 railroad accident, "it is of those that have gone before, of those that are to come after, for come they will… It is something that appeals to us all."[35] While continuing the narrative themes established after steamboat disasters in the first half of the century, the public discourse after midcentury presented an even more potent vision of traveler rights and an assertive role of a vigilant citizenry in assuring its own safety.

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[32] Mark Aldrich explains this rise of major disasters as a result of higher occupancy in cars and increased traffic rather than a more dangerous railroad system. Mark Aldrich, *Death Rode the Rails: American Railroad Accidents and Safety, 1828-1965* (Baltimore: Johns Hopkins University Press, 2006), 38.

[33] Though railroads had risen to prominence and began taking away traffic from steamboats, Louis Hunter notes the 1850s marked the high point of steamboat service, speed, and prestige. Hunter, *Steamboats on the Western Rivers,* 481.

[34] *Frank Leslie's Illustrated Newspaper,* August 2, 1856.

[35] *Frank Leslie's Illustrated Newspaper,* August 13, 1859.

Newspapers continued to give a voice to public concerns and weekly national

papers in particular published strong editorials that furthered the claim of the public's

authority on the issue of safe travel. After a crash on the Long Island Railroad, Oliver

Charlick, the president of line, rejected the idea that the collision occurred because there

was no signalman at the spot of the crash, which he said was unnecessary. *Harper's

Weekly* quickly responded: "we trust that the public will let Mr. Oliver Charlick

understand, in the most emphatic manner, that it *does* think a signal-man necessary at that

point."[36] Many started calling for direct citizen supervision of boats and rail lines. "Let

passengers observe the management of the boats. Let the authorities learn that they carry

every day a Committee of Vigilance, who will rigorously report the dangers and the

follies of the passage."[37] Travelers, it was widely stated, had been invested with such

authority based on the shared risks they undertook each day as passengers on steamboats

and trains, but as the century progressed the claim went even further. As the concept of

the traveling public gained clarity, Americans increasingly employed rhetoric about

rights and citizenship, ascribing to travelers certain rights and liberties that demanded

preservation against the forces that threatened to take them away. In discussions about

transportation and danger, the passive identity of modern travelers as victims of the

industry's dangers fell behind a more active vision that identified transportation

companies as public servants and saw travelers as empowered citizens who could

consciously defend their rights and collectively effect change on a grand scale.[38]

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[36] *Harper's Weekly,* September 16, 1865.
[37] *Harper's Weekly,* February 9, 1867.
[38] The reassertion of the idea that steamboat companies and railroad corporations were extensions of the public may in part have been a reaction to the increasing privatization of corporations in the latter half of the century. See Balogh, *A Government Out of Sight,* 314.

The tone of this evolving discourse is exemplified in a public debate that took place in print after an 1855 accident on the Camden and Amboy line near Burlington, New Jersey. When the train from Philadelphia was just beyond Burlington, its operators noticed a train from New York coming down the same track. The conductor of the Philadelphia train was reversing into a turnout to let the New York train pass when it backed into a carriage driven by a Dr. Heineken. The train immediately killed the horses and crushed the carriage, and the impact threw the rear car from the track. As the rear car pulled the other cars off the track, they collided into each other, killing about twenty passengers. After the accident Commodore Robert F. Stockton of the Camden and Amboy Company and the Reverend C. Van Rensselaer, a self-described representative of the public, discussed the nature of the accident and the company's response to it before a public audience. Rensselaer responded to an official company report on the accident with an anonymous pamphlet, but his identity soon became public and the two figures exchanged several letters in the press. Their public correspondence, along with an account of the accident and the verdict of the coroner's jury, were collected together and republished as a pamphlet by Joseph M. Wilson of Philadelphia, entitled "Documents and Papers Relating to the Late Camden and Amboy Railroad Accident."[39]

Like the print debate between "S." and "J.E.D." after the *Lexington* disaster, Rensselaer's and Stockton's exchange was one of the public battles that sometimes took place in print following a steamboat or rail disaster. The debates were a byproduct of the public character of these disasters, which, because they involved complex technology and questions of responsibility that were human rather than divine, practically demanded

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[39] "Documents and Papers Relating to the Late Camden and Amboy Railroad Accident" (Philadelphia: Joseph M. Wilson, 1855), AAS.

public discussion that sometimes rose to the level of individual confrontations. Printed battles like this were not new – the extended public contests between the political leaders of the early nation are an obvious predecessor.[40] As John Brockmann describes in detail, this "combative exchange" represented a clash over company responsibility between prominent personalities familiar with each other.[41] Rensselaer and Stockton, though, were driven to public debate less by personal attacks that necessitated public rebuke than by an awareness of the weight of public opinion and investment in the issue. The publisher Joseph Wilson's notice on the cover to "Hear both Sides" acknowledged the public's interest and investment in the matters being discussed. "I have no private ends to answer," Rensselaer began his review. This was an issue of public concern that should rightfully be debated in the public's view.[42] The result was a conversation that reflects Americans' shifting understandings of travel and the public interest in it.

Following the verdict of the coroner's jury, an Executive Committee of the Camden and Amboy Company produced a report about the disaster which was approved by the company's directors and published. The report was largely a defense of the company against any accusation of carelessness or neglect causing the accident. The Committee assigned primary blame to Dr. Heineken, the driver of the wagon that the reversing train hit, and spent several pages commenting that responsibility for safety had to rest with those individuals crossing the tracks. In the Committee's estimation, a train could not be expected to sound alerts constantly and stop for every possible crosser. Invoking the collective traveling public in its own defense, the company said "The law of

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[40] For a discussion of the role of print in politics and public debate, see in particular Joanne Freeman, *Affairs of Honor: National Politics in the New Republic* (New Haven: Yale University Press, 2001).
[41] Brockmann, *Twisted Rails, Sunken Ships,* 139-145.
[42] "Documents and Papers," 11.

the land, the dictates of common sense, and the demand of the travelling public, alike forbid the necessity of checking the train for every wagon that can be seen in the neighborhood of the track." The public demanded speed and convenience as well as safety, and railroad travel would be crippled by such regulation, the committee suggested. With the current technology and speed of travel, the company argued, "there can be no absolute safety." The company then advocated a broad solution to maximize safety; limit restrictive regulations on railroads and "consider them as useful public conveniences entitled to the liberal support and just consideration of the people." The Committee fully believed that the "wisdom of the Company's regulations, and the faithfulness of their employees, will stand vindicated before the considerate judgement of an enlightened and moral people." Their vision was of a public transportation system that, despite some unavoidable dangers, received the full support of public confidence.[43]

The Reverend Rensselaer had a different understanding of the public's relationship to the transportation system, one he modeled in his review of the company report. Rensselaer took issue with the company's lack of sympathy with a suffering public and its denial of all responsibility. The company had insisted that a single-track railroad line was safe and their operating procedures sound, against what Rensselaer said was the near "unanimous judgment" of the traveling community. "They persist in exposing the public to the hazard of their present mode of managing this great single-tracked thoroughfare," Rensselaer wrote, and instead of tightening rules for public safety the company only laid blame on others. The author extensively detailed the dangers inherent in the company's existing regulations and countered its denial of responsibility

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[43] "Documents and Papers," 8-10.

in the Burlington accident, concluding that the company should "revise their regulations, in conformity with public opinion."[44]

At this point, the debate shifted to direct, published correspondence between Stockton and Rensselaer, his identity now revealed publicly. In their letters, the two continued to argue about the accident's details and the operation of the railroad line, but more remarkable is that their debate became just as much about the nature of the public's role in regards to the safe operation of railroads. In his first letter, Stockton defended the tone of the Committee's report and said no public sympathies were expressed because the report was for the company directors. Stockton then assaulted Rensselaer's pamphlet as un-Christian and attacked its merits: "I am not aware of any particular qualification possessed by the clergy, which enables them to instruct railroad Companies with regard to the construction and management of railroads."[45]

Rensselaer continued to position himself as a public representative, suggesting that the public would expect a reply from him. His response reads like a manifesto for a traveling public conscious of itself and confident in its collective power. Setting aside the details of the Burlington crash, the clergyman instead assailed Stockton's improper approach to public debate. Rensselaer called the crash a "public disaster" and again criticized Stockton for still not offering condolences. Within a dominant culture that understood the expression of sympathy for the dead and their mourners as a sign of social benevolence and sincerity, this was not an insignificant attack; Rensselaer's assault

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[44] "Documents and Papers," 12; 22.
[45] "Documents and Papers," 23.

further exposed Stockton's lack of awareness of the public nature of the tragedy.[46] "Your document for the Directors was also intended for the public," Rensselaer wrote, noting that the report had been sent out in the mails and published in regional papers. In contrast to Stockton's letter, Rensselaer's called attention to its public audience with frequent references to a reading public that demanded information and would eagerly learn of the company's wrongdoing. He then turned to Stockton's question about a clergyman critiquing railroads, condemning Stockton's slander of the clergy. Clergymen, Rensselaer told Stockton, "are as liable to be killed as others," "have the same civil rights as other persons," and "have not divested themselves of any of those rights, as citizens, which you yourself enjoy." Though he never abandoned his clerical voice, Rensselaer claimed the increasingly prominent and more effectual voice of the citizen. As others had before him, Rensselaer claimed his own susceptibility to death while traveling, a central piece of the emerging identity of the modern traveler, as a qualification to judge the industry and push reform.[47]

Rensselaer then broadened his statement to assert the rights of all citizens to discuss public affairs. "I shall claim my right, as a Jerseyman," he wrote, "to discuss the subject of railroads… whenever I may see fit, and especially whenever a great emergency arises." Again noting the public nature of the company's report, Rensselaer insisted that Stockton had "no right to find fault with any person for venturing to review it." The letter

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[46] Karen Halttunen, *Confidence Men and Painted Women: A Study of Middle-Class Culture in America, 1830-1870* (New Haven: Yale University Press, 1982), 124-152.

[47] "Documents and Papers," 25-27. Rensselaer's shift to his citizen identity, his assertion of citizen authority, and his effort to hold company officials accountable stand in stark contrast to his fellow clergyman F. Reck Harbaugh's insular religious interpretation of the same disaster, discussed in Chapter Four. The contrast highlights the shifting dynamics of disaster response, which was increasingly oriented toward material explanations and the authority of the public and technical experts over the clergy. On the decline of clerical authority in nineteenth-century America, see Ann Douglas, *The Feminization of American Culture* (New York: Alfred A. Knopf, 1977), especially 17-43.

consistently used the language of rights, saying the traveling public had the right as citizens to comment on public matters, to pursue efforts to maintain their rights to safe travel, and to protect the lives of their fellow citizens. In a last move to equate himself with Stockton, Rensselaer signed his letter "Your fellow-citizen of New Jersey."[48]

Stockton's next letter was fairly brief, written, it seems, to end the debate. Stockton mostly repeated his critique of Rensselaer's character and his defense of his own, but he did take particular issue with Rensselaer's apparent hypocrisy, asking, "Have you a license by virtue of your profession to excite prejudice against and defame individuals, and are they adjudged to silence?" Rensselaer saw no contradiction; in his response he reasserted the clergy's right, a citizen's right, to criticize railroad companies while also rejecting Stockton's right "to intrude into apostolic functions." Railroads were different – they were public roads that belonged to the people. "The people will insist upon the laying down of a double-track," Rensselaer confidently said. "This is the people's plan." The clergyman ended the correspondence with another noteworthy signature: "I am, in the rights of citizenship, your fellow-Jerseyman."[49]

Rensselaer's focus on traveler rights and the rights of citizenship is indicative of a larger theme in the discourse on danger and modern transportation: the assertion of rights for a traveling public and the quest for safe conveyance was an effort to fulfill the nation's republican promise. Out of Americans' responses to steamboat and rail disasters emerged a clear delineation of the rights of the individual as a traveler, a central identity in modern American life: "the first thing that he may justly demand of every company

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[48] "Documents and Papers," 28.
[49] "Documents and Papers," 28-30.

that undertakes to transport him is proper provision for care of life and limb."[50] After a series of rail accidents in 1865, A *Harper's Weekly* editorial succinctly outlined a vision of transportation in a republican society: "there is a contract between the companies and the people… If it is broken by the privileged party, the party that grants the privilege may properly take the steps necessary to secure the fulfillment of the conditions." In other words, the American transportation system belonged to the people, and the companies that directed transport, the "privileged party," did so at the will of the people. The statement continued, in language recalling the Declaration of Independence, "whenever a company established for the public convenience becomes a public danger, the public will very properly insist upon taking care of itself, by imposing new conditions upon the company."[51] In response to an apparent public danger, Americans declared their sovereignty and aired their collective grievances in an act to secure their rights as travelers and as citizens of the republic.

Framed in such terms, steam-related disasters represented a threat to American liberty, and many editorials proclaimed the incompatibility of steam's dangers and republican values. "We claim for ourselves a degree of personal independence in this country nowhere else enjoyed," a *Leslie's Weekly* writer said after the Camp Hill railroad disaster in 1856. "The theory is, that we are personally valuable… and in fact, are sovereigns," and yet when it came to "protection of life and limb" American government had fallen far short.[52] Newspapers frequently called the loss of life aboard steamboats and trains a "national disgrace" and argued that no other government in the world so

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[50] *Harper's Weekly,* November 13, 1869.
[51] *Harper's Weekly,* March 18, 1865.
[52] *Frank Leslie's Illustrated Newspaper,* August 2, 1856.

disregarded human life.[53] Even totalitarian governments seemed to take better care of their traveling citizens. In Russia and France, "public conveyances are under especial surveillance," one writer said; "it is a crying shame that under monarchical and autocratical governments there is a safety of person that is not enjoyed in this, our otherwise superior country."[54] In the press, safe travel became associated with republican civilization, and danger a sign of its failure. *Harper's Weekly's* "How Shall We Save Ourselves" editorial voiced the increasingly common criticism: "our daily slaughter-roll justifies the sneer, that the model republic holds human life cheap."[55] Another after the Angola rail disaster suggested that "until the details of life can be as carefully adjusted here as elsewhere, our claim to the highest civilization will be unfounded."[56]

Some assessments linked the apparent widespread disregard of human life and dignity to the nature of mass transportation and the push for profits. The disorienting feeling identified by early railroad passengers that they were like packages flung across the country at high speeds later became a way to critique railroad companies' low valuation of human life. "If the Central Road treats its passengers like dogs, when it can only charge them two cents a mile, it will treat them like pigs when it can charge them three," noted one writer.[57] The same sentiment appeared after the especially tragic Camp Hill disaster; the responsible employee's recklessness proved "he had long ceased to consider the thousands intrusted to his care in any other light than merchandise, that was

[53] *Frank Leslie's Illustrated Newspaper,* August 13, 1859.
[54] *Frank Leslie's Illustrated Newspaper,* August 2, 1856.
[55] *Harper's Weekly,* September 16, 1865.
[56] *Harper's Weekly,* January 11, 1868.
[57] *Harper's Weekly,* March 18, 1865.

to be transported from point to point."[58] This critique responded to a transportation

system that entailed travelers ceding control of their movement to others, but also to a

railroad system that was growing in size and intricacy in order to manage dramatically

increasing traffic. Corporations necessarily managed their expansive rail networks by

viewing the system of travel in the aggregate; the rhetoric of the traveling public

therefore called for renewed attention to the individual traveler and the fundamental

purpose of transporting people safely and comfortably from one place to another.[59]

The nation's advanced transportation system seemed to make travelers powerless

while investing great power in corporations, a reality often revealed in the legal battles

that followed disasters. Newspaper editorials commented on the ability of railroad

companies in particular to escape responsibility or suffer little when they were deemed

culpable. An editorial after the Camp Hill disaster noted that "few individuals have

purses long enough to compete with these irresponsible corporations" and thus the odds

of success in a legal battle always favored the company. The law made companies liable

for damages, but "we can neither imprison or hang a corporation whatever may be the

amount of murder it commits." Only railroad companies could buy off murder rather than

face punishment, the writer suggested, and "this is the reason that murder is so rife."[60]

Even if individuals received some payment, the company's officers "would be none the

more careful, its employees none the less reckless."[61] With the pattern of rail disasters

showing no sign of ending, writers lamented a system that privileged corporate power.

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[58] *Frank Leslie's Illustrated Newspaper,* August 2, 1856.
[59] On the development of the railroad system, see especially Alfred D. Chandler, *The Visible Hand: The Managerial Revolution in American Business* (Cambridge: Harvard University Press, 1977), 79-205.
[60] *Frank Leslie's Illustrated Newspaper,* August 2, 1856.
[61] *Frank Leslie's Illustrated Newspaper,* September 16, 1865.

"The truth of the matter is this," read an editorial following the *Henry Clay* disaster, "both railroads and steamboats in every part of this country, exercise, through their managers and owners, an amount of influence far more active and potent than any mere abstract idea of public indignation that may grow out of such startling disasters."[62]

Those commenting on disasters identified at least one more significant anti-republican threat: an indifferent, or worse, a self-interested public. Public inaction was the focus of much concern in the press. Americans were known to proclaim individual rights, a *Harper's* writer said, but they sometimes showed an unfortunate apathy toward the public right of safety.[63] Noting the alarming number of railway deaths during the previous year, an 1865 *Leslie's* editorial wrote that "people are aghast," but they "wait motionless for some interposition, from some source, between them and the danger involved in traveling."[64] Meanwhile, they continued to celebrate the speed and progress brought by steam-powered travel. The press also criticized the public and its own reporting pattern, which drew extensive attention to and commentary about the issue of danger primarily after large-scale disasters. "There is something astounding in the patient submission of the public to these slaughters," one writer said after an accident on the Erie Railway in 1869. After a crash, "indignant editorials and demands for justice" filled the papers and "a vague expectation of justice" grew among the public, "and then nothing

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[62] *Weekly Herald,* August 14, 1852. A comprehensive treatment of railroad law is James Ely, *Railroads and American Law* (Lawrence: University of Kansas, 2001). Morton Horwitz briefly traces the evolution of railroad liability in *The Transformation of American Law, 1780-1860* (Cambridge: Harvard University Press, 1977), 201-210. For a cultural and literary analysis of evolving notions of blame and liability and steam disasters, see Nan Goodman, *Shifting the Blame: Literature, Law, and The Theory of Accidents in Nineteenth-Century Transportation* (Princeton: Princeton University Press, 1998), Chapter 4 and Chapter 6. A fascinating study of railroads and streetcars and their influence on protective legislation is Barbara Young Welke, *Gender, Race, Law, and the Railroad Revolution, 1865-1920* (New York: Cambridge University Press, 2001).

[63] *Harper's Weekly,* November 13, 1869.

[64] *Frank Leslie's Illustrated Newspaper,* September 16, 1865.

more until the next burning." This writer lamented the frequent disappearance of public outcry during stretches that were relatively free of disaster and argued that silence was acquiescence to the danger.[65]

Americans faced a public crisis that necessitated a public solution. That solution involved a judiciary that held steamboat and rail owners accountable for dangerous conditions and actions as well as legislative measures that secured passenger safety.[66] As one citizen argued, "the credit of our State, as a well governed republic demands it."[67] More important still was an informed and active American public that spoke with a strong voice. America's public discourse about the dangers of steam travel was indeed disaster-driven; steam disasters brought newspaper coverage and opened windows during which the broader threats facing travelers could be discussed among an excited public. This was not lost on the press. "The heart sickens at these oft-repeated tales," one writer said of disaster coverage, "but they must be told, they must be repeated, until our sleeping people awake in their own defense."[68] The ongoing tragedy of steamboat and rail deaths, many said, demanded a vigilant press and the collective voice of an activist traveling public. An anonymous "passenger" urged this after the *Yosemite* explosion in 1865: "let the press, the proclaimed guardian of the people's interest, manfully and independently maintain their rights in this matter," and "let the public be united and determined to investigate the circumstances thoroughly."[69] Safety legislation was the typically expressed goal, but while the government might not act, one writer argued, the press and

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[65] *Harper's Weekly,* August 7, 1869.
[66] Brian Balogh writes about the rise of the judiciary as the major force of federal intervention in the late nineteenth century in *A Government Out of Sight,* Chapter 8.
[67] Article, untitled newspaper, "The Yosemite Explosion," 1865, Huntington Library.
[68] *Frank Leslie's Illustrated Newspaper,* August 13, 1859.
[69] "The Yosemite Explosion."

the broader public could not be silent.[70] If the public did not speak, wrote another, "we may as well resign ourselves hopelessly to the admission that we have no rights railway companies are bound to respect."[71]

In the second half of the century the American press ceased to be just the deliverer of information on the risks of steam transportation, making Americans aware of the pattern of danger and transforming disasters into events of national concern. Now, it actively positioned itself as a critical observer of the transportation industry. The press was both the embodiment of the public and its protector – the "interposition" between the traveling public and the threats it faced on American rivers and rails. Railroad companies had a definite interest in preventing large-scale disasters, which were potentially costly in terms of liability payments. However, the publicity the press brought to disasters also shaped and generated action, influencing both the rise of regulatory impulses and the particular approach to railroad regulation in the United States. Every disaster exposed different system issues and engineering problems, and by making these causes part of the national conversation, the press helped build the pressure for targeted reform.[72]

The significant role of public opinion and disaster publicity is demonstrated by the efforts of Charles Francis Adams Jr. and the Massachusetts Board of Railroad Commissioners. Long envisioned by Adams, the commission began in 1869 with the stated goal of monitoring railroads for the public good, and then it received its first major test with the 1871 rail accident at Revere, Massachusetts, that killed twenty-nine and injured dozens more. The Commission launched a full state investigation of the accident,

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[70] *Frank Leslie's Illustrated Newspaper,* August 13, 1859.
[71] *Frank Leslie's Illustrated Newspaper,* September 16, 1865.
[72] Aldrich, *Death Rode the Rails,* 98; 129.

with Adams authoring the major report. Without any actual regulatory power, the board instead pushed for railroad companies to make safety reforms voluntarily. The board gathered railroad companies to a conference shortly after the Revere disaster and Adams skillfully used public opinion evident in the press to secure an agreement on new rules of railroad operation. "In effect," says Thomas McCraw, "he manipulated public outrage to serve the ends of the commission, the railroads, and the public."[73]

Adams applied this strategy to the board's activities generally, arguing that with the commission, the "otherwise scattered rays of public opinion could be concentrated to a focus."[74] As a member of the board, Adams consciously spoke to public concerns and sought to educate the general public on railroad matters. The commission and public opinion functioned together; public accident investigations filtered knowledge and the language of accident causes into the public discourse and disaster-driven public grievances allowed the commission to exert pressure on companies. The commission was an evolution of the earlier local committees that had investigated disasters and asserted the authority of public opinion. Its approach of giving accidents publicity and pressuring railroad companies to improve safety became a model for other similar state commissions – a form of what historians have called "soft" regulation that often stood in place of legislative action.[75]

Beyond its political influence on the regulatory system that scholars have documented, the press's role as a tool of surveillance over public transportation also

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[73] Thomas K. McCraw, *Prophets of Regulation: Charles Frances Adams, Louis D. Brandeis, James M. Landis, Alfred E. Kahn* (Cambridge: Harvard University Press, 1984), 20-30. On the Massachusetts Board of Railroad Commissioners also see Aldrich, *Death Rode the Rails,* especially 71-96, and on the investigation of the Revere accident see Brockmann, *Twisted Rails, Sunken Ships,* 181-206.
[74] Quoted in McCraw, *Prophets of Regulation,* 20.
[75] McCraw, *Prophets of Regulation,* 20-56; Aldrich, *Death Rode the Rails,* 71-96.

represented a cultural and psychological adaptation to the ongoing threat of danger on the nation's transportation highways. A vigilant press offered at least the perceived comfort that a collective public was always watching. In the face of corporate power, the press could publish the names of those parties it deemed responsible, as *Leslie's* did after an 1859 accident on the Albany, Vermont, and Canada Railroad: "all that we can do is to proclaim to them and to the world, that the men whose names are attached are morally guilty… and if they escape the laws of their country, they cannot the detestation of their fellow-men."[76] If government did not act, the traveling public could oversee the conditions of their own travel and make dangers known. *Harper's Weekly* reported in July 1865 that passengers on the Erie Railroad had observed the practice of planting willow trees along the line for decoration, but one had recently fallen and nearly caused a crash. The paper urged travelers to report such potential dangers, suggesting that "it is in this kind of observation and public report that the daily travelers by railroads into the city can exercise a wholesome supervision of their condition and management."[77] After the tragic railroad disaster at Angola in 1868, the paper pushed readers to report every accident, even smaller ones; "many a traveler has knowledge of many a mere escape and mishap, which, if published, would compel the public to demand some action upon the subject."[78] Informing the American public about the dangers they faced collectively as travelers, and thus broadening the circle of those affected by a disaster to a national public whose opinion held substantial weight, offered the best possibility of effecting change.

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[76] *Frank Leslie's Illustrated Newspaper,* August 13, 1859.
[77] *Harper's Weekly,* July 15, 1865.
[78] *Harper's Weekly,* January 11, 1868.

Another *Harper's Weekly* editorial published in April 1868 demonstrates the growing value placed on the role of the press regarding traveler safety. The paper reported on a libel case then underway between the New Jersey Railroad and the newspaper *The Nation,* which had been commenting on the railroad's apparent criminal carelessness. The *Harper's* writer argued that "the *Nation,* in strict pursuance of its duty as a public journal, exposed the conduct of public agents to whom the lives of hundreds are daily intrusted." The case was of interest not only to other newspapers but also to a traveling public that depended on a protective press; "if comments like those of the *Nation* should be judged libelous, the public would suffer very much more than it does now."[79] This editorial and others reflected a long-established truth, that "as all Americans travel more or less, we are all peculiarly interested in making travel safe," but by the second half of the century they more frequently completed the idea: "nothing tends to that result so surely as the publication of the accidents and carelessness of management which travelers observe."[80] In other words, reporting on disasters and a public discourse on steam power's dangers actually *made travel safer.* A traveling public that convened in print and supervised modern travel would assure its own security.

Seen within the larger context of various discussions about modern transportation and American values, the efforts of the American traveling public are especially significant. Americans had long wondered what effect steam-powered transportation and the high-speed mobility it brought might have on the nation's revered republican identity. An improved, efficient transportation system appeared to be the solution to early

[79] *Harper's Weekly,* April 4, 1868.
[80] *Harper's Weekly,* November 17, 1866.

concerns about the survival of a vast republic, but steam power, and machine technology generally, marked such a jarring change that questions arose. John Kasson summarizes the cultural dilemma:

> Could modern technology expand the possibilities for creative power and human liberty, free Americans from drudgery and deadening routine, and bring them into closer communication with one another and with nature? Or might technology instead blunt people's imaginations and ethical sensibilities, alienate them from their environment, and perhaps even serve as a new instrument of tyranny?[81]

As editorial responses reveal, the rampant death caused by steamboat and rail disasters exacerbated concerns about the compatibility of modern technology and America's republican experiment. And yet, in confronting the dangers of steam travel Americans achieved and modeled a vision of republicanism fit to a modern, technological society. Disaster provoked the creation of an interested and informed public that assembled in person, petitioned elected representatives, and used the press as a vehicle for shared knowledge and supervision of changing industrial realities. The emergent republican vision asserted the rights of the individual within a massive system of public transportation, called for protecting individual liberty against powerful corporations, and declared the public's sovereignty over its own mobility. In this adaptation to steam-powered transportation and its concurrent dangers, Americans consistently proclaimed the value of individual rights and the shared public good.

The idea of an activist press and public ensuring its own safety reveals the optimism that was integral to the broader rhetoric of the traveling public. The pursuit of security for the users of steam technologies rested on the notion that the risks steamboats and trains posed were fixable problems. That hope for change paradoxically coincided

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[81] John F. Kasson, *Civilizing the Machine: Technology and Republican Values in America, 1776-1900* (New York: Hill and Wang, 1976), 110.

with a degree of fatalism that increasingly ran through the discourse that followed disasters. Perceptions that steam travel was unsafe were given credence by the press, which often repeated the idea that it was "a very serious thing for any one to leave home even upon the shortest of journeys." After the 1868 Angola disaster, in which a train had derailed off a track and burned when a heating stove spilled fire into the wreckage, a *Harper's* writer echoed the common refrain that this would surely not be the last tragedy: "frost will touch and snap iron next week as it did last, and when the car goes over the stove will go with it, and fire will still burn, and horrors be piled on horrors."[82]

Illustrations and cartoons published in *Harper's* and *Leslie's* punctuated the troubling reality that Americans faced. A full-page illustration in *Harper's* September 23, 1865, issue shows a dark train hurdling forward, crushing writhing bodies as it proceeds unchecked. At the controls is a frightening personification of death, shrouded in black, overlooking the slaughter. Surrounding the train are smaller details of various disaster scenes – a burning ship, an exploding steamboat, two trains colliding, and a train cascading off a bridge. The text adjoining the image underscores the sense of inescapable danger: "Death appears to have set his mark upon the traveler… and every man or woman who steps out of a railway car or steamboat at the termination of their journey unhurt does so with a feeling of sensible relief."[83] A similar image printed in 1873 after the Meadow Brook rail disaster, called "Death on the Rail," depicts Death destroying the track to send the approaching train to its doom. The event goes unnoticed to a sleeping

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[82] *Harper's Weekly,* January 11, 1868.
[83] *Harper's Weekly,* "The Horrors of Travel," September 23, 1865.

watchman nearby.[84] These images reveal a pervasive fear and a heightened sense that

danger always accompanied steam-powered travel.

Many continued to respond to disasters with faith in the technology, like the

commenter on the *Yosemite* explosion who argued that "a properly constructed boiler, of

good material, properly supplied with water, with proper working safety valves, and

carefully attended to, will never explode."[85] At the same time, though, public responses

showed an emerging acceptance of accidents. A doctor and author of a pamphlet, "On

Medical Provisions for Railroads," argued about rail disasters that "it is useless to say

that all this is unnecessary and may be avoided." Unforeseen accidents were going to

continue, the doctor insisted, so he advocated for provisions on trains that would allow

for quicker medical care for those injured in a potential crash.[86] "It may not be possible to

avoid all accidents," one editorial writer said, "but it is possible to do something to

prevent them."[87]

The resignation that disasters would continue was therefore not antithetical to, but

rather often a necessary condition of, the optimistic pursuit of reform. To suggest

provisions for quick relief to the injured, there had to be an acknowledgment of the

likelihood of more train crashes. Newspaper coverage that revealed a consistent pattern

of danger and enhanced perceptions of a broad threat against travelers spurred claims of

passenger rights and public calls for change. Thus, even as cultural discourses cemented

the association of steam transportation and danger in the public mind, they constructed a

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[84] *Harper's Weekly,* "Death on the Rail," May 10, 1873.
[85] "The Yosemite Explosion."
[86] Edmund S. F. Arnold, "On Medical Provisions for Railroads as a Humanitarian Measure…" (Albany: Weed, Parsons and Company, 1862), 4. HL.
[87] *Harper's Weekly,* November 13, 1869.

widespread idea that the risks of steamboat and rail travel could always be limited. With confidence in a watchful traveling public that defended stated rights and occasionally prompted the adoption of new safety measures, Americans could perceive themselves as safe despite ongoing disasters. Printed complaints about danger and assertions of the rights of the traveling public were not denunciations of steam-powered travel – they were expressions of faith in progress and efforts to strengthen the technology that was such a desirable aspect of modern life.

Chapter Seven:
Accepting Unlikely Events

"It is as much a necessity of their lives as the food they eat and the air they breathe," Charles Francis Adams Jr. wrote of Americans and the railroad. Adams was a student of railroads and a public authority on their management. He was also the grandson of John Quincy Adams and great-grandson of John Adams. Across four generations of prominent public figures, that spanned the whole of the nineteenth century, the storied American family had witnessed the rise of steam-powered machines that transformed American life. By the final decades of the century, high-speed transportation had become an entrenched feature of modern American society. This, despite what Charles Francis Adams Jr. called "a vague but deeply rooted conviction… that the railroad has created a new danger; that because of it the average human being's hold on life is more precarious than it was."[1]

Adams explored that conviction in his 1879 book *Notes on Railroad Accidents,* the culmination of his many years studying them. Disasters of steam transportation had certainly given Americans a new experience of danger, and after decades of exposure to countless tragedies, the association of steamboats and railroads with danger was strong. Adams believed, however, that perception had outpaced reality:

> The fact is that when a railroad accident comes, it is apt to come in such a way as to leave no doubt whatever in relation to it. It is heralded like a battle or an earthquake; it fills columns of the daily press with the largest capitals and the most harrowing details, and thus it makes a deep and lasting impression on the minds of many people. When a multitude of persons; traveling as almost every man now daily travels himself, meet death in such sudden and such awful shape;

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[1] Charles Francis Adams Jr., *Notes on Railroad Accidents* (New York: G. P. Putnam's Sons, 1879), 232-233.

the event smites the imagination. People seeing it and thinking of it, and hearing and reading of it, and of it only, forget of how infrequent occurrence it is.[2]

Adams's words highlight two significant conceptions of technological disaster present in American culture by the end of the nineteenth century. On the one hand, the relationship between high-speed travel and danger had become fixed in the American mind. The public's encounters with and responses to steam-related disasters had bred a common familiarity with the catastrophic events and awareness of American travelers' universal subjection to the perils of modern mobility. Popular discussions about the threat posed by American steamboats and railroads focused on the horror of disaster, the shortened lives of the victims, the apparent shameful disregard for human life, and the necessity of preventing such terrible tragedies. The grievances voiced by the American traveling public emphasized the right of individual travelers to secure conveyance. All the while, the ongoing pattern of disaster, printed response, and public commentary normalized steam transportation's dangers and made them an evocative cultural category for Americans, most of whom would never experience those dangers directly. The dangers of steam travel and the concept of the transportation disaster developed alternate figurative connotations and broader cultural salience that reveal a general ease with the reality of these incidents as features of modern life, even as new disasters continued to prompt hopeful calls for reform.

Another attitude emerged, however, which acknowledged danger as part of all modern travel and looked to control it rationally. Rather than characterize the threat as one of danger and disaster, this discourse dealt with risk, a manageable measure of the dangers incident to travel, and accidents, labeled as failures of a complex human-

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[2] Adams, *Notes on Railroad Accidents,* 232.

technological system. Instead of using anecdotal evidence and emphasizing the individual

traveler, proponents of this discourse approached the problem from a systemic

perspective, using statistical analysis and scientific information to study risk and

prescribe appropriate solutions. The insurance industry, growing in significance in the

second half of the century, was one major sphere of American life that brought this

narrative to the forefront. Alongside insurance was an analytical approach to railroad

accidents modeled by Adams's work, privileging science and statistics over sensation.

The statistical evaluation of risk and the scientific approach to improving railroad safety

through technological innovation helped make the railroad what Anthony Giddens calls

an "expert system" – a technological system structured by professional, expert knowledge

that allowed users to expect consistency from the system across time and space.

Proponents of this adaptation to transportation's dangers urged prudent preparation for

the possibility of accidents and trust in a system run by sophisticated technology and

trained human operators.[3]

      Historians have detailed the rise of systems of risk in nineteenth-century America,

identifying insurance, statistical analysis, and rational approaches to safety as significant

adaptations to industrial capitalism.[4] In its relationship to modern travel, though, the

development of a risk culture is best understood as closely intertwined with popular

cultural responses to disaster. Cultural conceptions and shared public meanings of steam

discourses filtered through the language of risk, and together, these responses formed an

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[3] Anthony Giddens, *The Consequences of Modernity* (Stanford: Stanford University Press, 1990), 27-29.
[4] Literature on risk as a modern concept in America is vast. Great recent studies include Jonathan Levy, *Freaks of Fortune: The Emerging World of Capitalism and Risk in America* (Cambridge: Harvard University Press, 2012); Arwen P. Mohun, *Risk: Negotiating Safety in American Society* (Baltimore: The Johns Hopkins University Press, 2013); and Dan Bouk, *How Our Days Became Numbered: Risk and the Rise of the Statistical Individual* (Chicago: University of Chicago Press, 2015).

emerging modern mentality on the relationship of danger to high-speed transportation and advanced technology. They aligned in understanding and accepting technological disasters as both inevitable and unlikely. Catastrophic disasters confronted Americans with a prevalent force of destruction, but that confrontation had largely taken place in print – newspapers, visual depictions, and public conversations that familiarized Americans with the threat and provoked fear, but at a level removed from actual personal danger. Adams and others accepted the reality of transportation accidents, but they identified statistical unlikelihood as the accidents' most defining feature. Disasters were expected, they said, but their tragic consequences could be limited with proper planning, continued scientific study, and technological development. As the age of steam approached its end, then, Americans had come to know transportation disasters as pervasive but rare; threatening but not personally so; easily imagined but reasonably dismissed.

By midcentury, with steamboat disasters at their peak, railroad disasters increasing in severity, and newspaper circulation continuing to grow, Americans confronted news of transportation accidents with regularity. Steam disasters had also become deeply incorporated into the mentality of nineteenth-century Americans. References to steam disasters appeared in a wide array of nineteenth-century historical records, as three diverse examples illustrate. First, an educator "of the deaf and dumb," describing in an 1839 report differences in syntax between spoken English and sign language, gave this example of signers' inverted sentence structure: "If relating an account of a particular steamboat accident, they say, 'steamboat explosion, killed so

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many at such a time and place.'"[5] The example of a steamboat disaster also showed up in

instructions given to 1850 census-takers about recording cause of death: "When

unknown, state 'unknown,' where by accident, as steamboat explosion, so state."[6] And

finally, there is the offhand remark of a character in an 1856 novel, *Caste: A Story of*

Republican Equality, written by Mary Hayden Green Pike under the pseudonym Sydney

Story Jr. A son explains to his mother why he has delayed in courting the woman he is

interested in:

> If I was a little less decided I might do better; but I am not the man to say 'Will
> you?' more than once, to any woman; and being undecided what she will say, and
> tolerably sure that a negative would make me feel like patronizing the first
> railroad accident, or steamboat explosion, or any other speedy and genteel method
> of shuffling off this mortal coil, I have been waiting.[7]

Thus had steamboat and rail disasters become part of the American cultural fabric,

pervasive enough that they were seen as characteristic of modern life (and death).

A shared national consciousness and familiarity with steam-related disasters

allowed them to be intelligible and useful in representations of the American experience.

In his famous commentary on modern life, *Walden,* Henry David Thoreau occasionally

mentioned the actual train that ran near his pond-side retreat but he also frequently called

upon trains and rail accidents to represent his thoughts on the problems of American

society. "We do not ride on the railroad; it rides upon us," wrote Thoreau, commenting

on the unnecessarily rapid pace of the society as a whole. Elsewhere, Thoreau wondered

if the supposedly broad benefits attributed to railroads and other technological advances

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[5] "Thirteenth Annual Report of the Trustees of the Ohio Asylum for the Education of the Deaf and Dumb. To the Legislature of the State of Ohio. For the Year 1839." (1839), 14, American Antiquarian Society.
[6] "Instructions to Marshals and Assistants," *Seventh Census of the United States* (1850), xxiii, AAS.
[7] Sydney Story Jr., *Caste: A Story of Republican Equality* (Boston: Phillips, Sampson, and Company, 1856), 80.

might be more limited than most believed: "though a crowd rushes to the depot, and the conductor shouts 'All aboard! when the smoke is blown away and the vapor condensed, it will be perceived that a few are riding, but the rest are run over, - and it will be called, and will be, 'A melancholy accident.'" Death and injury by rail were for Thoreau analogous to a deeper injury suffered by Americans caught in the unceasing forward movement of the national destiny. Thoreau's acquaintance with transportation disasters is evident throughout *Walden* in references to pervasive disaster reports in newspapers and the author's use of standard newspaper language – the "melancholy accident" – to explain his thoughts about modern American society to an audience he knew could follow along.[8]

Thoreau's figurative usage of railroad dangers suggests the polyvalence of steam transportation disasters, which also made them useful in political commentary. Particularly in political issues involving railroad companies, railroad disasters came to stand in for the various other problems critics of railroad corporations exposed, including the exploitation of railroad workers, the inordinate economic and political power wielded by railroads as models of concentrated capital, and the general disruption railroads brought in particular to urban residents.[9] An 1840 broadside urged Philadelphians to protest the extension of the Camden and Amboy Railroad through the city. The cautionary line "Mothers Look Out for Your Children!" underscored an illustration

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[8] Henry David Thoreau, *Walden* (New York: Signet Classics, 2012), 44; 75-76.
[9] For a general survey of railroads and labor conflict, see Gerald G. Eggert, *Railroad Labor Disputes: The Beginnings of Federal Strike Policy* (Ann Arbor: University of Michigan Press, 1967). A good overview of anti-corporate sentiment is James L. Huston, *Securing the Fruits of Labor: The American Concept of Wealth Distribution, 1765-1900* (Baton Rouge: Louisiana State University Press, 1998), especially Chapter 10. David Stowell argues that the physical disorder and hazards railroads brought to urban streets as a principal factor in the 1877 Railroad Strike. David O. Stowell, *Streets, Railroads, and the Great Strike of 1877* (Chicago: University of Chicago Press, 1999).

showing a locomotive labeled "Monopoly" barreling through a city street sending men, women, and carriages scurrying away in fear. The image of a train crushing city residents tapped into an actual physical danger posed by trains but also reduced the broader anti-Camden and Amboy message, based in concerns about Philadelphia becoming a "suburb of New York" to the detriment of its citizens' livelihood, to a more tangible image of fear.[10]

An 1872 Thomas Nast cartoon similarly explored concerns about railroad corruption and political power through disaster imagery. Entitled "Justice on the Rail – Erie Railroad (Ring) Smash Up," the illustration showed the personified Justice switching the track to send the Erie Railroad ownership group led by Jay Gould cascading over the cliff with the cars.[11] Gould's control of the Erie Railroad Company had been secured with legislative assistance from Boss Tweed's political machine, but in early 1872 the ring had been broken and a new board took over the company. Nast, a frequent critic of Tweed's political corruption, illustrated the fate of the company with the imagery of danger; the Gould ring meets its demise in a deadly derailment while the new board, represented as an oncoming train, proceeds toward a clear track.[12] A year later a Frank Bellew cartoon on the front page of the *Daily Graphic* highlighted fears about railroad corporations' perilous influence over the U.S. economy by showing several locomotives, portrayed as monsters, running over individuals and heading toward a cliff labeled "National

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[10] Broadside, "Mothers Look Out for Your Children!" (1840), accessed online at https://imagespublicdomain.wordpress.com/category/transportation/.

[11] Thomas Nast, "Justice on the Rail – Erie Railroad (Ring) Smash Up," in *Harper's Weekly,* March 30, 1872.

[12] On Nast and Tweed, see especially Renée Lettow Lerner, "Thomas Nast's Crusading Legal Cartoons," *Green Bag Almanac* (2011).

Bankruptcy." A small background figure, a personification of the press, waves a cautionary "DANGER" flag in anticipation of the catastrophic accident.[13]

The tactic of using train disaster imagery to criticize railroad companies was a logical one – the power and momentum of a moving locomotive was an obvious symbol for the influence railroad companies had on late-nineteenth century society. These illustrations suggest how significantly danger had become integrated into the American conception of railroads. Americans frequently saw trains represented in one of two ways, as symbols of solid strength or as monstrous purveyors of destruction.[14] Railroad accidents were an easily decipherable metaphor for other negatively perceived features of the growing rail industry.

While disaster and danger metaphors were a natural cultural tool in discourses about the transportation industry, their utility extended to other issues as well. An anti-slavery song from the 1840s called "Get Off the Track" described emancipation as an unstoppable train. The lyrics were written from the perspective of a locomotive conductor representing the pro-emancipation position. The narrator repeatedly yells "sound the alarm" and warns all those attempting to block the train, representing opposing political voices, to "jump for your lives" and "clear the track" or else get run over. A cover image for the song's sheet music, created by the Thayer Lithography Company, shows train cars bearing the words "Immediate Emancipation" pulled by a locomotive, the "Liberator," itself topped by a ringing liberty bell warning of the oncoming train. In the background, other trains crash and explode, including one labeled "Clay" (a reference to Henry Clay's

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[13] Frank Bellow, "The Ride to Ruin," in *The Daily Graphic,* April 2, 1873.
[14] These two categories of depiction of trains are discussed in Chapter Three.

advocacy for gradual emancipation).[15] A pro-Union cartoon published during the Civil

War used the concept of a derailment, showing a personified locomotive falling off the

track with a caption reading: "Jeff Davis, the engineer, reports that his secession train ran

against some rails that Abe Lincoln split, and was thrown off the track."[16]

Similarly, an 1860 Currier and Ives print played on the idea of a railroad "smash-

up" to profile the politics involved in the 1860 presidential election. Aboard a locomotive

labeled "Equal Rights," Abraham Lincoln and Hannibal Hamlin yell "Clear the track"

and "Look out for the Engine." The train is nearing a collision with a wagon, the

"Democratic Platform," being tugged in opposite directions by human-faced donkeys. On

the left, Stephen Douglas and Herschel Johnson carry a Native American driver labeled

"A Squatter Sovereign," who warns of the sound of the oncoming train; on the right, the

John C. Breckenridge and Joseph Lane donkeys carry "Old Buck" who says "I'd rather

the Machine would be smashed than have them run away with it."[17] Eight years later

Currier and Ives reused virtually the same image for an 1868 election print called "An

Impending Catastrophe," showing President Grant driving the locomotive

"Reconstruction" on the Republican Railway toward his opponents, Horatio Seymour and

Francis Blair. John Adams Dix, aboard the train, says "if any man obstructs the track, run

him down on the spot."[18]

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[15] Sheet Music, Jesse Hutchinson Jr., "Get Off the Track," 1844. Cover image by Thayer & Co.
Lithography, Boston, Jay T. Last Sheet Music Collection, Huntington Library.
[16] Imprint, "Jeff Davis, the engineer, reports that his secession train ran against some rails…" (Philadelphia:
1861-1865), AAS. The imprint also calls to mind the literal destruction of railroads as a military strategy
during the Civil War. See James McPherson, *Battle Cry of Freedom: The Civil War Era* (New York:
Oxford University Press, 1988), 512-515.
[17] Print, "Progressive Democracy – Prospect of a Smash-Up," (Currier and Ives, 1860). American Satirical
Prints Collection, HL.
[18] Print, "An Impending Catastrophe," (Currier and Ives, 1868). ASPC, HL.

The frequent public use of danger metaphors is suggestive of a culture that had so deeply embedded steamboat and rail accidents into its collective consciousness that these metaphors, in simplified form, likely appeared with as much or more regularity in more informal and private settings. The diary of New England traveler Caroline Barrett White offers a stirring example when White describes the repeated kisses of the young couple sitting in front of her on the train as "collisions," but harmless ones unlike the destructive "collision of Engines."[19] Linguistic influence, to the extent it can be measured, underscores steam danger's cultural significance. Beginning early in the nineteenth century in England and America steam ushered in a number of new phrases, such as "putting on steam," "blowing off steam," and "letting off steam," in which steam was used figuratively to describe human energy and a notion of driving power.[20] The dangerous qualities and safety features of steamboats and trains filtered in as well. "Safety valve" was used nearly from the beginning of the steam era figuratively to describe a means of releasing pressure or limiting danger.[21] The satirical cartoons and illustrations from *Harper's Weekly,* Currier and Ives, and others point to ways that the language of steam transportation and disaster – tracks, smash-ups, or the verb "derail" – might be applied in diverse situations. The continued figurative use of such phrases and idioms as "steaming mad," "trainwreck," and "runaway train," reveal steamboat and rail disasters' lasting effect on the American lexicon.

Humor provides another fascinating window onto the cultural currency of transportation dangers, as they were often the subjects of jokes. Nineteenth-century

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[19] The Papers of Caroline Barrett White, entry dated August 1, 1851, AAS.
[20] "Steam," The Oxford English Dictionary.
[21] "Safety Valve," The Oxford English Dictionary.

newspapers sometimes had "Humor" sections filled with various one-line jokes or longer

comedic stories. Some simply used the frame of a transportation accident for an unrelated

punchline, like one from the publication *Brother Jonathan* in 1843: "We learn by one of

our exchanges, that 'two cows were cut into *calves* by the railroad train.'"[22] Some found

situational humor in accidents, like a joke in *Scientific American* in 1849:

> In a recent case tried in Cincinnati to establish the precise time of the death of a
> man who with his wife, were blown up by a steamboat explosion, an Irishman
> was put on the stand who was also blown up, but escaped. – Said the attorney to
> him, "When did you last see the gentleman alive?" "Sure, your honor, as me and
> the stovepipe were going up, we met him coming down."[23]

Making light of the frightening situation of a steamboat or rail disaster was one

way Americans might collectively cope with a new threatening force and for the press to

draw attention to the pervasive problem. Take an 1859 *Harper's* cartoon, for example.

Entitled "Scene. Office of the Railroad Company," the cartoon shows the company

President responding to a query from an applicant for the Brakeman position. The

President asks the bookkeeper, "Mr. Jones, has there been a Brakeman killed on the road

within a day or two?" After receiving a negative response, the President tells the

applicant, "Well, my man, call next Monday, and by that time I guess there'll be a

vacancy."[24] In an 1854 issue, the satirical periodical *Yankee Notions* published "Hints for

Railroad Accidents," a list of tips for passengers to ensure that they would experience an

accident. Among the suggestions: "Always get into the car next to the locomotive, so that

when there is danger you will not be far off; or into the rear car which, in case of a

collision stands a good chance of being smashed up;" "While travelling, jump in and out

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[22] *Brother Jonathan,* September 2, 1843.
[23] *Scientific American,* March 24, 1849.
[24] *Harper's Weekly,* November 12, 1859.

of the car as often as you fancy. Its of no especial benefit, but then its very risky;" and

"Always select night for travelling purposes, and if you can foggy ones."[25]

What we might call "disaster humor" was possible because of Americans' familiarity with the dangers of steam transportation. Steamboat and rail disasters were current and widely known, so they made easy fodder for jokes. More importantly, these jokes reveal the ubiquity of such accidents and even suggest a level of ease with the reality of danger in modern life. Some jokes indicate an implicit acceptance of the inevitability of accidents, making attempts to avoid or prevent them humorous. From the *Spirit of the Times* in 1849: "What is better than Presence of Mind in a Railway accident? Absence of Body."[26] Or decades later, another joke from *Harper's Weekly*:

> Mr. Snoozle: "It appears that in railroad accidents the first and last cars are always the ones injured."
> Mrs. S.: "Why not leave them off the train?"[27]

That Americans could joke about death and injury aboard steamboats and trains does not mean that public fears were not still significant, or that the public would fail to advocate for reform after disasters. Rather, it suggests what disaster had become in the public mind – less a source of real, paralyzing fear than a social problem and a worst-case-scenario event, easily imagined, but distant from most people's daily existence. Humor or metaphor helped defuse and moderate what was perceived as a significant threat. Once filtered through these alternate discourses, transportation dangers retained their finality and emotional power but lost the jarring trauma that could come with news of actual tragedy in the world.

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[25] *Yankee Notions,* July 1, 1854.
[26] *The Spirit of the Times,* June 30, 1849.
[27] *Harper's Weekly,* August 13, 1892.

The same held true for fiction, as two turn-of-the-century short stories illustrate. In Kate Chopin's "The Story of an Hour" (1894) and Willa Cather's "Paul's Case" (1905), both authors employ a train accident as a plot device bringing finality and release to their troubled protagonists. As the title says, "The Story of an Hour" takes place in a single sixty-minute period, during which a Mrs. Mallard hears of her husband's death and then learns that the news was mistaken and her husband is, in fact, still alive. At the start of the hour, Mrs. Mallard, who suffers from "heart trouble," learns from her sister and her husband's friend, Richards, that her husband, Brently Mallard, was among those killed in a railroad disaster. Stricken with grief, Mrs. Mallard retreats to her room and weeps, but soon her grief fades into joy when she realizes the freedom her husband's death will provide her. She imagines "a long procession of years to come that would belong to her absolutely," and "she opened and spread her arms out to them in welcome." For Mrs. Mallard, the train accident brings momentary sorrow but ultimately an apparent transformation. At the story's end, Mrs. Mallard, back downstairs, finds her husband alive and unaware that there had even been an accident; her heart stops immediately and she dies.[28]

In "Paul's Case," Willa Cather explores the transformational journey of Paul, a high-school student whose non-conforming sexuality and artistic interests breed disillusionment with his middle-class family, unimaginative schooling, and mundane life in Pittsburgh. Paul steals a sum of money and travels to New York City, where for several days he finds happiness embracing a bohemian lifestyle. Paul's adventure is doomed, however, when he learns that his father is on his way to New York to bring him

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[28] Kate Chopin, "The Story of an Hour," in *Kate Chopin, The Dover Reader* (Mineola, New York: Dover Publications, 2015).

home. Unwilling to face the prospect of returning, Paul ends his life by jumping in front of a train. While the train disaster happens away from the action in "The Story of an Hour," here the crash is at the heart of it, and Cather describes it in language characteristic of the disaster imagery found in newspapers and published narratives: "He felt something strike his chest, and that his body was being thrown swiftly through the air, on and on, immeasurably far and fast."[29] In both stories, train accidents serve not as signs of modern problems themselves but as sources of release and liberation from other struggles. Danger, more broadly, becomes a transformative force, instrumental in the modern experience.

Thus, even as transportation disasters continued to fill the newspapers and provoke widespread concern, they also became prominent in the realm of the figurative and imaginative, where they could be more easily accepted and experienced vicariously. A living version of the jokes and fiction played out daily at Coney Island in the first decade of the twentieth century. Among the popular rides and "technological sensations" at the Dreamland amusement park was the Leap Frog Railroad. The ride placed passengers in a rail car and sent them flying down a track while another car full of returning passengers moved on the same track in the opposite direction. Just as the cars seemed poised to collide and riders shuddered in anticipation of disaster, one car leaped over the other on rails equipped to create just such a moment.[30] The Leap Frog Railroad capitalized on consumers' shared fear of and familiarity with rail disasters to create the thrill of catastrophe that was imagined but not realized. This kind of amusement could

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[29] Willa Cather, "Paul's Case," in *Paul's Case and Other Stories* (Mineola, New York: Dover Publications, 1996).

[30] Kathy Peiss, *Cheap Amusements: Working Women and Leisure in Turn-of-the-Century New York* (Philadelphia: Temple University Press, 1986), 131.

only be successful in a culture acquainted with danger but comfortable with it as an unlikely threat. Disaster was paradoxically always near and always distant; the idea of a steam disaster was virtually inseparable from cultural perceptions of high-speed mobility, but actual danger was absent from the lived experience of most American travelers.

The presence of steamboat and rail disasters in American culture as a concept with deep resonance demonstrates Americans' collective recognition of a new phenomenon – the potential threat posed by steam technology. As the reality that transportation disasters were not a passing threat became clear, the transportation industry and individual travelers adapted by seeking greater security against the risks of travel, and the concept of insurance provided a path. Beyond death and injury, steamboat and rail disasters brought potential financial consequences to individuals injured, to families who suddenly lost a member and source of income, and to people using those steamboats or trains to transport goods and property. The pattern of repeated disasters therefore forced the various parties invested in travel and transportation to anticipate possible disaster and properly account for it.

The term "risk" itself derives from associations with the perils of the sea and the business of marine insurance – "risque" was a commodity purchased by merchants insuring themselves against loss of property shipped over the oceans.[31] Early in the development of the steamboat trade in the United States, steamboat owners followed earlier examples from maritime trade and insured their boats against destruction. As steamboat disasters became frequent and the lifespan of steamboats proved short,

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[31] Levy, *Freaks of Fortune,* 3.

insurance grew to be one of steamboat companies' most significant expenses. Following

traditional legal doctrines developed for maritime transportation, steamboat companies

were initially responsible for any losses except those that resulted from "the act of God or

the public enemies." Eager to avoid responsibility for losses that resulted from potential

accidents, steamboat companies included specific language stipulating their liability on

bills of lading, which were documents outlining conditions of delivery and receipt for

transported goods that had long been a part of maritime trade.[32] The often mysterious

causes of steamboat disasters, especially boiler explosions, challenged traditional

interpretations of liability. Early court rulings declared boiler explosions a result of

negligence and exempted them from insurance, but a shifting legal climate, beginning in

the 1830s, sought to encourage economic growth and enabled common carriers like

steamboats and railroads to create contracts limiting liability in more expansive ways.[33]

Tracking the changes in the boilerplate language used for bills of lading over the

course of the nineteenth century provides one of the clearest illustrations of Americans

recognizing and adapting to technological dangers. Eighteenth-century bills of lading

typically named the ship and its captain, the departure and arrival city and dates of the

trip, the goods to be transported, and often the price to be paid for the goods upon receipt.

The key clause in the contract followed a set format with blanks to be filled in for each

new bill, as in this 1761 example:

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[32] Louis C. Hunter, *Steamboats on the Western Rivers* (Cambridge: Harvard University Press, 1949), 363-368.
[33] Hunter, *Steamboats on the Western Rivers,* 365; Morton Horwitz, *The Transformation of American Law, 1780-1860* (Cambridge: Harvard University Press, 1977), 202-204.

> Being marked and number'd as in the Margent, and are to be delivered in the like good Order and well Conditioned at the aforesaid Port of _____ (the Danger of the Seas only excepted) unto _____ or to _____ Assigns.[34]

The line "the dangers of the seas excepted" was standard for these documents. Shippers could make adjustments to the language; a 1780 bill for a tobacco shipment has the word "only" crossed out and "& Enemy" handwritten in.[35] For the most part, though, the language was broad and inclusive enough to account for the failure to meet a contract due to various disasters at sea.

With the introduction of steam power, that significant parenthetical statement changed. Here is the language from an 1840 bill for a steam-powered tow line:

> Marked and numbered as per margin, which we promise to forward, (danger of navigation, fire, breakage, leakage, and other unavoidable dangers and accidents excepted…)[36]

As steamboat disasters piled up over time, bills of lading came to include more possibilities. By the 1850s most said something like "dangers of fire at sea or on shore, accidents from machinery, boilers, steam, or any other accidents and dangers of the seas, rivers, and steam navigation, of whatever nature or kind soever excepted."[37] This was not simply a result of continually refined and exacting language; "dangers of the seas excepted" remained the stipulation for sailing ships through the rise of steam navigation.[38] The differences in language reflect transitioning legal doctrine on liability and contracts but also a response to new technology and the range of new potential disasters that it added to existing dangers from natural circumstances and acts of God.

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[34] Bill of Lading, August 25, 1761, Jay T. Last Maritime Collection, Series 1, Binder 3, HL.
[35] Bill of Lading, September 24, 1780, JLMC, Series 1, Binder 6, HL.
[36] Bill of Lading, August 20, 1840 JLMC, Series 1, Binder 3, HL.
[37] Bill of Lading, September 9, 1853, JLMC, Series 1, Binder 3, HL.
[38] Bill of Lading, November 20, 1818, JLMC, Series 1, Binder 3, HL. Examples continue into the 1870s.

Steamboat bills of lading were an implicit statement about the dangers of steam navigation, simplified on an 1867 bill as "the incidental dangers of steamboats."[39] These bills of lading reveal an acceptance of danger as a reality of modern travel; the companies and individuals drafting them had to expect disaster even if it was improbable.

The growth of the insurance industry offered individual travelers the opportunity to do the same. The rise of insurance involved what Dan Bouk calls the creation of the "statistical individual in modern America."[40] Insurance companies recognized danger and sought to manage it scientifically, calculating various risks and assigning value to the consequences of disaster. The insurance industry proved to be a significant cultural force in late nineteenth-century America, bringing together existing attitudes about danger and transportation with an emerging conversation about risk. While newspaper editors and other observers eager to locate causality sometimes condemned the use of the term "accidents" to describe steamboat and rail disasters, the insurance industry embraced it, avoiding popular terminology like disaster or catastrophe. Instead of danger, which implied a fearful threat, they dealt in risk, which could be managed and reduced. The discourse of insurance conveyed an approach to disaster that was less about fear and horrific destruction, but instead understood it as something incidental to modern life.

The life insurance industry in America began in 1812 with the charter of the Pennsylvania Company for Insurances on Lives and Granting Annuities. The concept of commercial life insurance grew out of traditional fraternal societies that provided burial funds for deceased members. In the industry's early years, lack of statistical information on death in the United States limited its influence. Insurance was also burdened initially

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[39] Bill of Lading, December 21, 1867, JLMC, Series 1, Binder 6, HL.
[40] Bouk, *How Our Days Became Numbered,* xix.

by associations with immorality and illegitimate behavior, and religious concerns about individuals refusing to accept the will of God.[41] Nevertheless, the industry steadily grew, particularly after the 1840s and the emergence of mutual insurance companies that spread profits to policyholders. Insurance companies saw a dramatic rise in policies sold after the Civil War, especially as Americans became much more attentive to mortality.[42]

For each policy they sold, life insurance companies evaluated and commodified individual lives, and as the industry developed, calculations of risk became ever-more exacting and scientific. For most of the century, insurance companies primarily sold to middle-class men, convincing them of the necessity to replace their incomes and secure their families' livelihoods in the event of death.[43] But even as their calculations became scientific, companies sold policies by invoking shared cultural assumptions about the unpredictability of modern life. Advertisements printed on small cards, calendars, pamphlets, and posters emphasized the certainty of death and the possibility of misfortune with messages like "Delays are dangerous," and "Tomorrow may be too late!"[44] Potential buyers read that purchasing insurance was the only responsible choice in an unpredictable world. Insurance cards frequently quoted Proverbs, "A good man

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[41] The religious response to life insurance is explored in Viviana A. Rotman Zelitzer, *Morals & Markets: The Development of Life Insurance in the United States* (New York: Columbia University Press, 1979). Nan Goodman explores Mark Twain's objections to insurance and the broader relationship between insurance and individual responsibility in *Shifting the Blame: Literature, Law, and the Theory of Accidents in Nineteenth-Century America* (Princeton: Princeton University Press, 1998).

[42] Sharon Ann Murphy, *Investing in Life: Insurance in Antebellum America* (Baltimore: Johns Hopkins University Press, 2010). On the effect of the Civil War on conceptions of death and mortality, see Drew Gilpin Faust, *This Republic of Suffering: Death and the American Civil War* (New York: Vintage Books, 2008).

[43] Bouk, *How Our Days Became Numbered,* xxii.

[44] Life Insurance Card, Prudential Insurance Company of America (1886), Jay T. Last Insurance Collection, Binder 6, HL; Life Insurance Card, The Western and Southern Life Insurance Company, JLIC, Binder 6, HL.

leaveth an inheritance."[45] A series of illustrated cards from Sun Life Insurance drove home the message to American men. Entitled "Benefits of Sun Life Insurance," the cards had two panels, one featuring a family enjoying the fruits of the man's forethought – a summer beach vacation, a luxurious home – and the other showing the family of the dead man who had not purchased insurance, destitute and unhappy.[46] With a life insurance policy, American men could lessen the blow that sudden death so often had on a family.

In addition to life insurance, nineteenth-century Americans bought property insurance and accident insurance, which focused specifically on unexpected occurrences like fires, floods, and shipwrecks. As the insurance industry matured in the second half of the century, steamboat and rail disasters were among its concerns as some of the more prominent examples of sudden, accidental death. Another card in the "Benefits of Sun" series displayed a flaming train collision in the left panel with the caption "Killed in an unforeseen accident;" on the right, a grieving widow and her daughter, a "Family well provided for," visits the Sun teller to claim a five thousand dollar policy.[47]

Travel risks were significant enough that travel insurance became a category unto itself. Founded in 1864, the Travelers Insurance Company began as an effort to provide insurance to rail passengers and eventually served as a broader accident and life insurance company. Travelers and other companies sold policies and even individual one-day insurance tickets that guaranteed the holder compensation in case of death or injury. Insurance cards and posters featuring images of boats and trains reflect the industry's designation of travel as a distinct arena of risk. One typical Travelers poster shows a

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[45] Life Insurance Card, United States Life Insurance Company, JLIC, Binder 6, HL.
[46] Life Insurance Cards, Sun Life Insurance Company, JLIC, Binder 6, HL.
[47] Life Insurance Card, Sun Life Insurance Company, JLIC, Binder 6, HL.

colorful river scene with steamboats and a ship traveling on the water, carriages on the

shoreline, and a train going across a bridge.[48] The industry also capitalized on the

pervasiveness of steamboat and rail accidents in American society and culture. Many

advertisements presented Americans with the images of disaster that had become

standard emblems of steam transportation's dangers. An 1882 insurance card featured a

railway collision scene resembling the common illustrations in *Harper's Weekly* and

Frank Leslie's Illustrated Newspaper, with bodies being pulled from smoking

wreckage.[49] Another card for the Mutual Accident and Endowment Association of New

Orleans similarly recalled popular imagery of an exploding steamboat with bodies flying

in the air and victims floating in the water.[50] These images were fairly simple – scaled-

down versions not meant for drama but for consumers to recognize quickly a familiar

danger. Insurance advertisements made steam disasters emblematic of the broader risks

of travel and of modern life. On several colorfully illustrated Fidelity and Casualty

Company cards, train and steamboat accidents feature among a collage of potential

risks.[51]

Insurance advertisements reinforced and focused Americans' attention on the real

dangers they regularly read about and occasionally witnessed. If imagery did not already

remind consumers of the nation's disaster record, companies sometimes did so explicitly:

"think of the frightful accidents as at: *Ashtabula – New Hamburg – Spuyten Duyvil.*"[52]

These were not just place names but entries in American collective memory, established

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[48] Insurance Poster, Travelers Insurance Company, JLIC, HL.
[49] Insurance Card, The United States Mutual Accident Association (1882), JLIC, Binder 6, HL.
[50] Insurance Card, The Mutual Accident and Endowment Association of New Orleans, JLIC, Binder 4, HL.
[51] Insurance Card, Fidelity and Casualty Company, JLIC, Binder 2, HL.
[52] Insurance Card, Fidelity and Casualty Company, JLIC, Binder 2, HL.

by newspaper coverage and public commentary, that evidenced the pattern of danger on railroads. The world imagined by these advertisements featured the kind of unrealistic, exaggerated sense of danger – in one fictional story told month-to-month on an 1875 insurance calendar the protagonist survived several different travel disasters within the year – but still a danger rooted in a reality with which Americans were familiar.[53] The message to potential consumers was clear and often repeated in advertising taglines: accidents will happen.[54]

Companies for travel and other forms of insurance also emphasized that accidents could happen to anyone. "In accidents the unexpected always happens, and from the President downwards all are in danger," read one advertisement, a truth that had been verified each time a prominent name like Franklin Pierce appeared among disaster victims.[55] Some advertisements even playfully mocked the belief that one could be immune from risk:

> Do you know a man who never walks the streets, who cannot slip upon the pavements, who does not travel… whom fire will not burn, water will not drown, whom dogs will not bite, nor lightning strike, and who cannot fall from anything, or never can be sick? That man does not need Accident and Health Insurance. All others should apply to The Massachusetts Mutual Accident Association.[56]

This card placed travel among a host of daily threats. An 1882 card used a train crash as a specific example; it showed a man injured in a rail collision, his wife despondent because he did not have a policy to cover the injury.[57] The man is labeled "Not a member," and

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[53] Insurance Calendar, Hartford Accident Insurance Company (1875), JLIC, Binder 2, HL.
[54] Insurance Card, Fidelity and Casualty Company, JLIC, Binder 2, HL.
[55] Insurance Card, Fidelity and Casualty Company, JLIC, Binder 2, HL.
[56] Insurance Card, The Massachusetts Mutual Accident Association, JLIC, Binder 4, HL.
[57] Insurance Card, The United States Mutual Accident Association (1882), JLIC, Binder 6, HL.

another caption reads "Never had an accident before," a clear address to the many Americans who might think themselves safe.

The expansion in clientele for the insurance industry from male professional heads of households – bankers, lawyers, merchants, doctors – to the working class, women, and families is therefore especially significant in terms of travel insurance. The change reflects the recognition of an inclusive traveling public; steamboat and rail travel had been fairly democratic from the start, and only became more so as the century progressed. The risks of travel were broadly spread, exposing women, children, and working-class men to the same dangers that middle-class men faced. In a *Harper's Weekly* cartoon from 1879, a woman points out this shared assumption of risk to her husband: "What! Do you mean to say you've had *yourself* insured against any railroad accident, and left little Effie and me to take our chances?"[58] Insurance advertisements declaring that "all Travelers should Insure Against Accidents" reflected an inclusive modern identity that had become associated with subjection to danger.[59]

To convey their message, insurance companies also summoned statistical facts demonstrating the random, unavoidable nature of accidents to consumers. An insurance card from the United States Mutual Accident Association asked consumers, "why insure against fire and not accidents? Is your dwelling or warehouse more valuable than yourself? Are they more likely to be burned than an accident to happen to your person? Statistics say not."[60] Another Fidelity advertisement laid out the numbers for the year 1888: 1,602 railroad accidents, 585 killed, 1,889 injured. In both cases, statistics proved

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[58] *Harper's Weekly,* August 23, 1879.
[59] Insurance Card, Railway Passengers Assurance Co. of Hartford, Connecticut (1876), JLIC, Binder 6, HL.
[60] Insurance Card, United States Mutual Accident Association, JLIC, Binder 6, HL.

the fundamental point printed in large letters on the Fidelity card, that "Accidents do Happen!"[61]

This insurance narrative thus coincided with the longstanding idea, sparked by sudden, indiscriminate steam accidents, that all travelers were subject to danger. The message of travel insurance was another iteration of a familiar warning to Americans voiced by those commenting on steamboat and rail disasters since their beginning: anyone might die. That message had joined others over the century – that Providential design was unknowable and all must adequately prepare for death; that Americans faced danger because they were travelers; or that shared susceptibility to death created a shared authority to reform the industry. Blending these messages, the discourse of insurance once again impelled Americans to prepare for death in a thoroughly modern way – by purchasing insurance and limiting one's personal risk.

Insurance therefore offered a way to turn emotional fear into a rational preparedness for the unlikely worst. Insurance companies would eliminate the traveler's worry by managing their risk scientifically. Travel insurance broke down the life of the American traveler into discrete periods of risk. Passengers could purchase insurance tickets at rail stations – 25 cents for one day or 4.50 for thirty days, for example.[62] Then, companies translated accident casualties into monetary values – "3,000 dollars in the event of death, 15 dollars per week for disabling injuries."[63] Insurance simplified travelers' own determination of risk, making it a limited, individual decision. The more

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[61] Insurance Card, Fidelity and Casualty Company, JLIC, Binder 2, HL.
[62] Insurance Card, Travelers Insurance Company (1893), JLIC, Binder 6, HL.
[63] Insurance Card, Railway Passengers Assurance Co. of Hartford, Connecticut (1876), JLIC, Binder 6, HL.

difficult assessment of the widespread threat was left to a company that had its eye on the transportation system as a whole.

By relying on scientific data, then, accident insurance purportedly freed the individual from concern for both his or her own security and the national problem of steam power endangering travelers. Acknowledging the complexity of the insurance business, one advertisement said policyholders "cannot fully explain the reasons for their conduct," but they "intuitively" knew the importance of their investment. The advertisement went on: "they cannot count their chances of escape from peril, and they are willing to leave to some one else the dismal questions of how many will be taken home bruised or mangled this year, how many will be run over, etc.; they well know that accident insurance has a sound scientific basis."[64] Rather than seeing danger as a cultural problem, advertisements like this identified a manageable system of risk. Its scale and complexity was too grand for any one individual to comprehend, so insurance companies asked individuals to place their trust in a scientific, statistical assessment of their risk. Purchasing insurance was thus described as another prudent middle-class approach to the dangerous modern world not unlike Rollo's father's instructions in the children's book *Rollo's Travels* not to fret about danger, but instead to rely on others to manage a complex system. Trust in larger systems based in expert knowledge was an instrumental part of the emerging narrative on risk.[65]

The investment in insurance was particularly advantageous, companies said, when little else was working to make steam-powered travel safer. As a Hartford Accident

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[64] Insurance Card, Fidelity and Casualty Company, JLIC, Binder 2, HL.
[65] Jacob Abbott, *Rollo's Travels* (Philadelphia: Hogan & Thompson, 1845), AAS. Sharon Ann Murphy discusses the importance of life insurance as a marker of middle-class identity in *Investing in Life.*

Insurance Company calendar read, "unless something can be done to stop these railway accidents, the best thing for an individual to do is get insured. In fact it is best to take a policy and then endeavor to stop accidents."[66] Such insurance messages seemingly countered the mentality of a collective traveling body acting for the public good with a more individualistic notion that travelers needed only worry about themselves. But in another sense, insurance *was* a collective action, a system based on the principle that risk was diminished if shared among a large body of travelers. A Fidelity and Casualty Company advertisement captures this point, telling customers that it was wiser "to pay a company, organized upon the laws of average, a small *premium* rather than assume the risk yourself."[67] Individual travelers, in securing themselves with insurance policies, also served the collective, spreading the risk among many. Companies framed accident insurance as a more prudent and effective weapon against the threat of steam-powered disasters than either legal pursuit of compensation or public advocacy for reform.

Insurance companies provided a service that reduced one's monetary risk in the event of an accident; to a certain extent, however, the rhetoric of insurance equated managing risk in a financial sense with managing *danger,* both as a physical and psychological threat. One elaborate insurance card folded out to form an image of an elderly couple occupying a seat in a rail car. The woman looks nervous but her husband is content, as he holds a case that reads "We are all right, Maria;" the case labels them "Insured in the United States Mutual Accident Association." Of course, there was still no guarantee that Maria would be alright. Even though purchasing insurance did not prevent

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[66] Insurance Calendar, Hartford Accident Insurance Company, JLIC, Binder 2, HL. This line is reminiscent of the standard airline advisory telling passengers to secure their own oxygen masks before helping others.
[67] Insurance Card, Fidelity and Casualty Company, JLIC, Binder 2, HL.

accidents, or have any effect on the outcome of the journey at all, the implicit statement of the advertisement was that insurance made passengers safe. Pitched by agents and bought by policyholders as a responsible safety measure, insurance joined the discourse of the traveling public as an adaptation that had tangible results like monetary security and regulatory action but also provided a rhetorical sense that danger was controlled.[68]

A late-century Travelers card conveyed this perceived sense of security by reaching deeply into American railroad history. The card depicted the first locomotive built for service in the United States, the "Best Friend of Charleston," and provided the date of its debut – January 15, 1831. Below, the card told the locomotive's story: "The Negro Fireman, annoyed by the blowing off of steam from the safety valve, fastened down the valve lever and sat on it, with the result of an explosion, that killed him and scalded the engineer." Trains, the story suggested, were dangerous from the start. On the other half of the card, however, was the "First Excursion Trip of the 'West Point,'" an engine built to replace the Best Friend. This train now had a "barrier car" loaded with cotton bales between the engine and the passenger cars. The implication – insurance tickets, advertised at the bottom of the card, served a similar purpose, as a barrier between you, the passenger, and the dangerous machine.[69]

Far from downplaying the threat of accident, then, insurance allowed for it. In fact, there were those who worried that insurance even encouraged dangerous behavior and lack of individual responsibility – another way, perhaps, that steam's dangers became naturalized.[70] Regardless, insurance companies argued that the real danger was not

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[68] Insurance Card, United States Mutual Accident Association, JLIC, Binder 6, HL.
[69] Insurance Card, Travelers Insurance Company, JLIC, Binder 6, HL.
[70] Goodman, *Shifting the Blame,* 91-92.

expecting risk, so the rational move was to prepare for disaster, however improbable it was. The entire industry required events that were inevitable but unlikely – if accidents never happened there would be no reason to buy insurance; if they happened too frequently the business was not feasible. In this lay the driving message of the travel insurance industry. Travel entailed measurable risk – the statistics proved as much. Americans were unlikely to face disaster on their journeys but they might, so they had better be prepared.

While insurance companies assessed the risks of modern travel for their consumers, experts within the transportation industry like Charles Francis Adams Jr. analyzed accidents with the goal of limiting danger. After years at the forefront of the railroad regulatory debate, Adams published *Notes on Railroad Accidents* in 1879. The study is scientific, prescriptive, and historical in nature. As the title suggests and Adams admitted, the book has an unfinished feel; it is a compilation of somewhat unstructured notes and reports on accidents, much of it dry analysis of the causes and potential remedies for past accidents. Adams nevertheless explicitly intended the audience for *Notes* to be "both the traveling and general public."[71] Amid a long campaign to reform railroads, *Notes* was an effort to reshape public opinion and educate the public on accidents.[72] The book's thesis is straightforward – railroad accidents were incredibly tragic, but they were also uniquely instructive, having the long-term effect of compelling

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[71] Adams, *Notes on Railroad Accidents,* vi.
[72] Public education was a major aspect of Adams's work with the Massachusetts Board of Railroad Commissioners, as discussed in Chapter Six.

gradual reform and actually making the entire rail system safer.[73] With his own analysis, Adams sought to enact that conclusion and effect the full adoption of numerous safety measures.

The vision for improvement Adams demonstrated in *Notes on Railroad Accidents* is primarily a technological one. Adams suggested a variety of reforms; for example, he recommended the system of expert accident investigation in use in England as opposed to the untrained coroner's juries that often produced inadequate results in the United States. It was in technological solutions, though, that Adams placed the most faith. Chapter Five, "Telescoping and the Miller Platform," explores the particular American hazard of telescoping, in which, because of American car construction and coupling techniques that left car platforms at different heights, trains suddenly halted in a collision often sent cars directly through those adjacent to them. Adams described the workings of the Miller Platform, an 1866 innovation that brought cars back to the same height and coupled them so as to maximize the strength of resistance in each, eliminating the likelihood of telescoping. In other chapters, Adams examined the Westinghouse Brake and the automatic electric block system. Already in use by 1879, the Westinghouse Brake was controlled from the locomotive rather than by a rear brakeman who had to be signaled from the front, thus radically improving stopping times and reducing the possibility of rear-end collisions. Automatic electric blocking systems, Adams explained, were under development but would provide a consistent signaling method that relied on electricity

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[73] Adams, *Notes on Railroad Accidents,* 1-2.

rather than human signal-men, which Adams argued would lessen the risk of collisions with various obstacles.[74]

Beyond promoting specific innovations, though, Adams advanced a broader philosophy that advocated trusting expert analysis and technology over popular authority and human operation. That is not to say that Adams held train operators responsible for accidents; in fact, he argued strongly that they should not incur blame. Adams saw accidents as symptoms of a systemic problem based in the failures of company leaders to employ means of operation that maximized safety. He lauded the work of operators throughout the book but argued that there would always be limits on the capabilities and awareness of human operators, "no matter how intelligent they may be." The risks assumed by employees and the requirements placed on them also seemed to enhance passenger danger; as Adams quoted from a report by British railroad inspector Henry Whatley Tyler, "it is difficult to prevent men who are in constant danger themselves from doing things which may be a source of danger to others… and which impede them in their work."[75] Railroad lines relied too much on humans who were neither "angels nor machines" and naturally got tired, weak, and inattentive. Adams expressed surprise and displeasure with a system that "at this late day," in an age of technological innovation, counted so heavily on employees to care for the lives of passengers.[76] In Adams's account, technology was not a flawless savior of humanity – accidents were still sure to

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[74] Adams, *Notes on Railroad Accidents,* 86; 50-51; 199-215; 159-181.
[75] Henry Whatley Tyler, quoted in Adams, *Notes on Railroad Accidents,* 178.
[76] Adams, *Notes on Railroad Accidents,* 63; 162; 167-173; 155.

happen even in the best systems – but it presented the safest path for the future of railroad travel.[77]

Adams also expressed frustration that, occasionally, misinformed public opinion exerted undue influence on railroad reform. Narratives propagated in the newspapers, by focusing popular outcry on improper technical fixes, had the tendency to "divert public attention from the true lesson of the disaster" and unnecessarily hinder railroad operation.[78] Bridge disasters in particular seemed to mystify the public. Adams described various bridge disasters and resulting attempts to create laws that would require all engines to stop at draw bridges. These public proposals, Adams said, were "of the crudest conceivable character," at best imposing "a most absurd, unnecessary and annoying delay on travel" and at worst taking attention from the obvious solution – implementation of effective signaling technology. Adams understood the power of public opinion, especially in America, but hoped that expert voices could infiltrate public discourse and reshape opinions about accidents, as he looked to do with *Notes on Railroad Accidents*.[79]

Despite being a book about disaster, then, Adams's *Notes* is a progressive narrative. The thousands of lives that had been sacrificed on American railroads "were not lost in vain" because every accident revealed new problems, galvanized the will for reform, and supported technological innovation in the drive for safety. The result was, as Adams argued in his first pages, "that each year, and in obvious consequence of each fresh catastrophe, travel by rail has become safer and safer, until it has been said, and

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[77] Arwen Mohun argues that railroads represented the first major example of "complex socio-technological systems" that are "characteristic of modern and postmodern risk societies." Railroads helped teach Americans to manage risk in such systems. Mohun, *Risk,* 92.
[78] The tendency of newspaper coverage to amplify incorrect public assumptions and force regulation is discussed in Chapter Two.
[79] Adams, *Notes on Railroad Accidents,* 94; 108-109.

with no inconsiderable degree of truth too, that the very safest place into which a man can put himself is the inside of a first-class railroad carriage on a train in full motion." This was not just blind faith – it was a mathematically verifiable truth. So, Adams devoted his final few chapters to surveying statistics of railroad accidents in an effort to demonstrate to the American public that railroads were actually safe.[80]

Adams understood this was a tall order considering prevailing associations of railroads with danger, which he attributed largely to "the modern newspaper, with its perfect machinery for sensational exaggeration." Seeing what popular culture had made of railroad disasters, Adams wanted to flip the script. Instead of letting dramatic, deadly catastrophes absorb all coverage, he would throw the attention onto the millions of miles traveled every day without accident. He could accomplish this with statistical analysis, which allowed a God-like view of railroads as a massive, complicated system, its pieces all moving at once. "The vast machinery moves along, doing its work quickly, swiftly, safely," Adams wrote; "no one pays any attention to it, while millions make daily use of it."[81]

In Adams's retelling, the story of the railroad was of a technology that arrived in a world already full of dangers. Railroad accidents may have been dramatic but they were not out of the ordinary. In fact, he argued, railroads made travel safer. He surmised, based on French data, that in the early railroad years stagecoach accidents outpaced rail accidents sixty to one, if measured compared to total passengers carried. Later, Adams compared one year of railroad deaths in Massachusetts, which kept the most reliable state data, to numbers for other accidental deaths in Boston, finding fewer deaths from railroad

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[80] Adams, *Notes on Railroad Accidents,* 155; 2.
[81] Adams, *Notes on Railroad Accidents,* 233.

accidents than from falling out of windows, falling down stairs, or scalding. As for the precise risk of suffering a railroad accident, Adams posed the question, how many miles are traveled on average for every injury or death? Adams acknowledged that intermittent disasters created such variance year to year in casualty rates that analysis was always an approximation, especially with the sample size of a small state like Massachusetts. To be conservative in his estimation, Adams used numbers from the state's most deadly year on record, 1871. During that year in Massachusetts, the average number of miles traveled for each death was eleven million. If numbers from the entire decade were used, the average was eighty million miles traveled for one death.[82]

Adams's claim that railroad accidents were statistically infrequent was not a new one. Similar statistical arguments had been made by early respondents to steamboat disasters and had played a role in legislative arguments on the subject. Moderate newspaper editorials about rail accidents sometimes voiced the idea that "at every hour of the day and night there are thousands of human beings thundering along upon the rails, yet, upon the whole, how few are hurt!"[83] Both the federal and state governments, and of course insurance companies, had been keeping and using records for many years. The ubiquity of claims based in statistical data is suggested by a somewhat lighthearted passage in *Harper's Weekly:*

> The curious old speculations are revived that, according to the statistics of railway travel, every man who has traveled a certain number of miles is liable to have his arm broken; a few more and his leg is in danger; and after a certain number of

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[82] Adams, *Notes on Railroad Accidents,* 231; 242; 235-238. Notably, Adams did not include passenger injuries and deaths that resulted from their own "carelessness." Arguably, these could be still be considered casualties incident to rail travel, and would have raised Adams's calculated casualty rate.

[83] *Harper's Weekly,* November 19, 1864.

miles traveled his neck may be broken at any moment to keep the inexorable statistics straight.[84]

Adams, though, developed the argument more fully than anyone before, devoting a significant portion of his career to spreading the message about the safety of American railroads through newspaper editorials, books, and public lectures. A review of *Notes* in the *New York Times* praised the book's approach and pushed its claims that railroads were safe.[85]

Adams's systemic, scientific perspective defined the way he understood accidents. In *Notes,* he consistently and solemnly mentioned the human tragedy, but said accidents were both important case studies for reform and data points revealing systemic issues. Adams described the major railroad disaster near Revere, Massachusetts, in 1871, one he had investigated for years, as the product of "undeveloped strength" and "hidden weakness." His narrative of the accident reads like a lengthy tale whose ending is already known, and Adams as the author laid out the obvious weaknesses and "mischances" that came together to bring danger to a largely safe means of transport. As with the insurance language, Adams's terminology suggests a sharp departure from earlier understandings of disasters as divine judgments or acts of reckless murder. Toward the end of the book, he defined accidents in perhaps the most scientific way possible, as "inequalities of movement" within the vast and complicated transportation system.[86] John Brockmann correctly notes that Adams included some thrilling description clearly influenced by disaster narratives like those in *Lloyd's Steamboat Directory* or S. A. Howland's

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[84] *Harper's Weekly,* December 10, 1864.
[85] R. John Brockmann, *Twisted Rails, Sunken Ships: The Rhetoric of Nineteenth Century Steamboat and Railroad Accident Investigation Reports, 1833-1879* (Amityville, New York: Baywood Publishing Company, 2005), 238.
[86] Adams, *Notes on Railroad Accidents,* 127; 137; 270.

Steamboat Disasters and Railway Accidents, but the author of *Notes on Railroad Accidents* would be more accurately termed an "anti-Howland," attending to the rational over the emotional, safety over danger, and the massive, functioning transport system over the anomalous disaster.[87]

It was the nature of these accidents – products of systemic operating weaknesses, unpredictable mischances, human carelessness or inattention, but *accidents* – that made them, in the end, unavoidable. Even as he continually pushed to make railroad travel more perfect, Adams accepted the reality of a limited risk. "It is to be constantly borne in mind," Adams stressed, "not only that the railroad performs a great function in modern life, but that it also and of necessity performs it in a very dangerous way." He continued; "A practically irresistible force crashing through the busy hive of modern civilization at a wild rate of speed, going hither and thither, across highways and by-ways and along a path which is in itself a thoroughfare," could not be expected to work flawlessly. Danger was built into the modern American transportation system, and in this, railroads were not unusual. Adams identified a technological society that brought progress along with limited risk, in which railroads deserved no more censure than "all other functions of modern life."[88]

Railroads *were* unusual, though, in their relative safety compared to the potential for danger, Adams argued. In *Notes,* Adams sometimes referred to early skeptics of railroads, who could not imagine how railroads could be made safe, and called the skepticism "wholly justified." Adams wrote:

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[87] Brockmann, *Twisted Rails, Sunken Ships,* 240.
[88] Adams, *Notes on Railroad Accidents,* 248-249.

> As it plunges into the darkness it would seem to be inevitable that something must happen, and that, whatever happens, it must necessarily involve both the train and every one in it in utter and irremediable destruction. Here is a body weighing in the neighborhood of two hundred tons, moving over the face of the earth at a speed of sixty feet a second and held to its course only by two slender lines of iron rails; - and yet it is safe!

Here was Adams's closing point – his twist on the standard progressive narrative. "There are few sights finer," Adams said, than standing on a platform and watching a train rush by. Their sublime catastrophes had long stirred the American imagination. And yet, Adams wrote, "it is not, after all, the dangers but the safety of the modern railroad which should excite our special wonder."[89]

Adams's claims were echoed by others. A report on an 1893 train wreck in *Frank Leslie's Illustrated Newspaper* reveals a significant tonal shift from the paper's standard coverage of prior decades. The article, entitled "Eccentricities of Railway Casualties," reflected Adams's language, calling the accident "an interruption of the laws of motion." Then the writer expressed a similar wonder, "that in the accidents inevitable under the best and most efficient management, and especially in those involving the total destruction of trains, so few passengers sustain serious or fatal injury."[90] For Adams and those who shared his view, disasters had ultimately made travel safer, and with each new advancement in railroad safety, accidents became more unlikely and less destructive. The steam engine, the locomotive – these were unfathomable achievements and testaments to human reason, not in spite of accidents but also because of the human triumph those accidents revealed. As Adams argued, a book detailing transportation disasters was not, as James T. Lloyd said, evidence of that "mismanagement of steam power… so

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[89] Adams, *Notes on Railroad Accidents,* 176; 269; 234.
[90] *Frank Leslie's Illustrated Newspaper,* September 28, 1893.

eminently perilous and destructive of human life" but rather the greatest evidence of modern scientific progress.[91] Adams concluded, "there is no more creditable monument to human care, human skill, and human foresight than the statistics of railroad accidents."[92]

No matter how unlikely transportation disasters were, or how normal they had become, as long as they continued they would be troubling. Adams knew this. "Railroad accidents continually take place, and in consequence of them people are killed and injured, and of these there may well be some who are then making their first journey by rail," Adams wrote. "Any person as he may be reading this page in a railroad car may be killed or injured through some accident, even while his eye is glancing over the figures which show how infinitesimal his danger is."[93] Statistical evidence suggested that suffering a railroad accident was incredibly unlikely. Insurance policies could add a sense of financial security in the event of an accident. Rail accidents nonetheless remained a prevalent, real source of danger in the modern world. Decades after her first train ride, Caroline Barrett White wrote in her diary that her son Charlie was traveling by rail westward to Chicago: "Now the beloved son is speeding (let us hope safely) over the long road between this and Chicago." Three days later she received word "showing the long journey safely ended – and I am thankful in these days of frequent accidents."[94] White wrote these entries just a month after reading of a local rail accident; her fear does

[91] J. T. Lloyd, *Lloyd's Steamboat Directory, and Disasters on the Western Waters* (Cincinnati: James T. Lloyd & Co., 1856), iii.
[92] Adams, *Notes on Railroad Accidents,* 171.
[93] Adams, *Notes on Railroad Accidents*, 239.
[94] The Papers of Caroline Barrett White, October 30, 1983 and November 2, 1893.

not appear all-consuming, but Charlie's travels brought accidents to her mind. In a larger sense, transportation accidents were so embedded in American culture they were an easily-imagined archetype of worst-case-scenario danger. An illustration in an 1881 issue of *The Wasp* called "Dreaming" showed a girl seated by the hearth, asleep. Filling the page around her are various fanciful and fearful things that fill her mind, and at the top, a girl is crushed under a moving train.[95]

"Few persons, probably, start upon any considerable journey, implying days and nights on the rail, without almost unconsciously taking into some consideration the risks of accident. Visions of collision, derailment, plunging through bridges, will rise unbidden."[96] Adams thus summed up a lasting effect of steam power's dangers. Adams, like many others, worked to ensure Americans could enjoy the benefits of modern travel as safely as possible. Accidents happened, though, and many died on America's rivers and rails. Charles Francis Adams Jr. may have discovered that truth at a young age listening to a story from his grandfather, John Quincy Adams, who had survived the nation's first fatal train wreck. Limited risk, the unlikely disaster – these were the natural partners of the machines that conquered space and time.

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[95] *The Wasp,* December 23, 1881.
[96] Adams, *Notes on Railroad Accidents,* 234.

Epilogue

In 1867 Charles Francis Adams Jr. called the United States a "child of steam."[1]

This was, in many ways, an appropriate characterization of the nation in the nineteenth

century, as the possibilities and consequences of steam power pervaded American

society. In the century's first decade, steam power and its application to transportation

arrived to a people that, somewhat unknowingly, desired and even required it. The

vastness of the American continent, the country's difficult terrain, and its underdeveloped

infrastructure made long-distance journeys challenging and dangerous, severely limiting

the mobility of individual American travelers. On a national scale, distance and difficult

travel imposed significant obstacles to the functioning of an American economy that

would require integration, an American society that leaders sought to unify, and an

American government that demanded representatives from distant locations travel to

meet in a central capital. Steam-powered transportation offered a solution to these

escalating problems with the promise of faster, more efficient, and safer travel.

Almost from their debut, however, steamboats and trains exhibited a new form of

danger and destruction wrought by deadly explosions, fires, collisions, wrecks, and

crashes. Many Americans suffered the costs of these disasters directly, but many more

encountered them from a distance, mediated through printed materials. News coverage of

disasters raised their profile, established a pattern of danger, and suggested to the

American public and the nation's governing bodies that the perils of steam transportation

demanded real attention. A substantial public discourse grew around steam dangers and

disasters, made up of news coverage, editorials, disaster narratives, visual

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[1] Charles Francis Adams Jr., quoted in Thomas K. McCraw, *Prophets of Regulation: Charles Francis Adams, Louis D. Brandeis, James M. Landis, Alfred E. Kahn* (Cambridge: Harvard University Press, 1984).

representations, disaster sermons, and popular literature, that made the dangers of steam transportation a shared experience among Americans who increasingly incorporated the new reality disasters represented into their collective mentality. Through these various responses to and interpretations of disasters, Americans framed the dangers of steam as a profound social problem but also as a spectacular and meaningful feature of modern life. Steamboat and rail disasters provoked widespread and deep reflection about the meaning of disasters apparently caused not by God or nature but by technologies that humans created and by the humans who failed to control them properly. Disasters also forced Americans to evaluate whether technological progress, represented by the speed and power of steam transportation, was an unequivocal good, and what danger on American rivers and roads meant for the health of a republic that so valued the benefits of expanded mobility.

Americans continued to embrace steam power and seek technological progress while adapting to and attempting to limit their deadly consequences. Printed materials connected the American reading public through a common knowledge about the nature of steam transportation's dangers, and they also connected readers to the victims dying on steamboats and trains. Disasters consistently proved that all travelers were subject to death and injury, and the aftermath of disasters created moments during which the American reading public became a concerned traveling public, meeting in person and using print to voice grievances and to argue that safe conveyance was a right of all traveling citizens. Even as efforts to combat danger through the discursive, legal, and political arenas continued, by the late nineteenth century Americans had also gradually come to accept the dangers of transportation technology, both as familiar cultural

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phenomena and as inevitable risks of modern life. American culture's exposure to steam disasters, mediated through printed materials, had made the horrific tragedies intelligible events that most Americans consumed at a distance, the actual danger remote from their lives. Scientific and analytical approaches to transportation disasters also emerged that evaluated the risks of travel, advised Americans to prepare adequately for the worst, but encouraged the public to trust an advanced technological system that would keep catastrophe unlikely and travel safe. By the end of the century, a modern mentality was evident that recognized transportation dangers as fearsome and sensational, but unlikely – the accepted cost of high-speed mobility.

As Americans closed the nineteenth century and entered the twentieth, the age of steam was also coming to a close. The primary herald of its end was the creation of a new system for powering movement – the internal combustion engine. Steam engines operated on external combustion, meaning the fuel burned outside the cylinder and steam, a mediating agent, drove the piston. The internal combustion engine, perfected in the final decade of the nineteenth century, burned fuel within the engine and the resulting energy powered motion directly.[2] The steamboat trade on American rivers had long been in decline due to the success of railroads that penetrated the continent, but the internal combustion engine marked its ultimate end.[3] Steam-powered ocean liners continued to operate in the twentieth century but were also overcome by ships operating on diesel engines. Steam locomotives were replaced by electric and diesel locomotives.

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[2] Ruth Schwartz Cowan, *A Social History of American Technology* (New York: Oxford University Press, 1997), 225-227.

[3] Louis C. Hunter, *Steamboats on the Western Rivers* (Cambridge: Harvard University Press, 1949), 640.

More significantly, the new source of power inaugurated a new transportation regime dominated by the automobile and powered flight. Much like a century earlier, Americans eagerly embraced the possibilities of these machines. A new magazine called *Horseless Age* wrote of the automobile in 1895, "the growing needs of our civilization demand it; the public believe in it, and await with lively interest its practical application to the daily business of the world."[4] The influence of the automobile reflects another manifestation of America's distinct ambition to conquer its vast space, as the new machine became symbolic of American national culture in the twentieth century.[5] The automobile also shifted the nature of travel partly back to an individually-designed and directed venture. Commercial air travel, on the other hand, reflected the latest iteration of public mass transportation, one that annihilated space to a new degree and fully destroyed what Wolfgang Schivelbusch calls the "mimetic" relationship of travel and landscape.[6]

New modes of transportation brought fresh hazards and inspired new fears. In 1904 Caroline Barrett White, who had written of her initial experiences on steamboats and trains and of her fears for her son's safety on a railroad journey, recorded her disdain after witnessing a near auto accident – "Oh! Those horrid automobiles."[7] Cars crashed with increasing frequency, and between 1945 and 1965 the U.S. Government reported that annual deaths from automobiles rose from 30,000 to 50,000. Public agitation, including Ralph Nader's popular book *Unsafe at Any Speed,* urged regulation despite industry defenders' claims that the rate of accidents was going down, and in 1966 the

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[4] Quoted in Cowan, *A Social History of American Technology,* 227.
[5] On automobile culture in the twentieth-century United States, see especially James J. Flink, *The Automobile Age* (Cambridge: MIT Press, 1988).
[6] Wolfgang Schivelbusch, *The Railway Journey: The Industrialization of Time and Space in the Nineteenth Century* (Berkeley: University of California Press, 1986), 9.
[7] Caroline Barrett White Papers, Vol. 26, entry dated April 25, 1904. American Antiquarian Society.

National Traffic and Motor Vehicle Safety Act became law.[8] The federal government had

been involved much earlier in regulating passenger safety on airlines with the 1926 Air

Commerce Act.[9] Of course, despite safety measures, accidents from these modes of

transport would not be completely eradicated. Nor did accidents on older modes of

transport go away, as the 1912 *Titanic* disaster demonstrates. Fatality rates on railroads

declined sharply in the twentieth century; still, train accidents are rare but familiar events

even in the twenty-first century.[10]

The mentality evident at the end of the age of steam continues to characterize the

responses of Americans to the benefits and dangers of twentieth-century transportation

technologies, though the form has shifted slightly based on the particularities of each

mode of travel. When they are not in the news, transportation disasters, both old and new,

continue to pervade American culture, appearing in films, television shows, television

commercials, literature, and music, as evocative images of danger and effective

storytelling devices. Auto accidents and plane crashes, real and fictional, are familiar to

us all, but most of us maintain deep, often unconscious, faith in modern political and

human-technological systems to keep travel safe.

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[8] Cowan, *A Social History of American Technology,* 239-240. Public agitation seems to have followed the patterns of response established by nineteenth-century Americans regarding steamboats and trains, as Cowan says that for the public, statistical arguments on auto accidents "paled to insignificance when compared with the mounting toll of dead children, paralyzed teenagers, totaled cars, and failed brakes." Ralph Nader's book exposed the "designed-in dangers" of American automobiles and the automobile industry's reluctance to implement safety measures. Ralph Nader, *Unsafe at Any Speed: The Designed-In Dangers of the American Automobile* (New York: Grossman, 1965). For a recent study of early automobile danger, see David Blanke, *Hell on Wheels: The Promise and Peril of America's Car Culture, 1900-1940* (Lawrence: University of Kansas Press, 2007).

[9] Cowan, *A Social History of American Technology*, 256.

[10] Mark Aldrich, *Death Rode the Rails: American Railroad Accidents and Safety, 1828-1965* (Baltimore: Johns Hopkins University Press, 2006), 323-325.

The onward march of modernity has also only accelerated the compression of time and space.[11] Along with the automobile and the airplane, other technologies of the late nineteenth-century and the early twentieth century, like the telephone, wireless telegraphy, the cinema, electric lighting, and more, continued the reorientation of Americans' spatial and temporal experiences. New ideas in science, such as Albert Einstein's theory of relativity and Sigmund Freud's psychoanalysis, and new trends in literature and art, such as stream-of-consciousness writing and Cubism, reflected and reinforced evolving conceptualizations of time and space and made simultaneity a definitive concept of twentieth-century modernity. As they did in the nineteenth-century, communication technologies continued to influence how humanity experienced distant events, including transportation disasters. Stephen Kern writes that "the sinking of the *Titanic* was a simultaneous drama played out on the North Atlantic as its wireless distress calls filled the skies," and while hundreds of survivors "witnessed visually" the sinking, "it was also witnessed electronically by telegraph operators in numerous ships at sea and by wireless operators in telegraph and newspaper offices across North America and Europe."[12] Modern life continues to be marked by such simultaneous connections across space.

Technology, of course, has been a prime facilitator of these transformations. America's national obsession with technology persisted through the twentieth century,

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[11] I subscribe to the theory that "postmodernity" is not a distinct period from "modernity," but rather, that the present moment simply marks a more advanced degree of the conditions of modernity, particularly time-space compression. This approach can be seen, for example, in Anthony Giddens, *The Consequences of Modernity* (Stanford: Stanford University Press, 1990) and Stephen Kern, *The Culture of Time and Space, 1880-1918,* Second Edition (Cambridge: Harvard University Press, 2003). Marc Augé labels the present age "supermodernity." Marc Augé, *Non-Places: An Introduction to Supermodernity,* trans. John Howe (New York: Verso, 1995).

[12] Kern, *The Culture of Time and Space,* xii-xiii. Kern's study is a masterful analysis of the complicated reorientation of space and time at the turn of the twentieth-century.

and experiences of technology certainly still provoke a similar unifying awe and wonder to what early nineteenth-century Americans felt when confronted with steam power.[13] That many modern technologies have proven dangerous as well as beneficial only enhances that sublime experience and the prominent role of technology in the American psyche. Danger was an unintended consequence of America's embrace of steam power in the nineteenth century – a sign of the double-edged nature of modern technology. Advanced technology, by nature, occasionally breaks down, fails, or threatens its users, and it consistently raises questions about a society's collective values and the potentially harmful influence of progress on traditional social relations and cultural norms.[14]

New innovations will bring the same complicated issues to bear. American society currently confronts another potentially seismic shift in transportation with autonomous automobile technology. Already, many cars feature autonomous elements, and self-driving cars are highly-anticipated to bring potential "enormous reductions in highway crashes and deaths" and to revolutionize the capabilities and convenience of modern mobility.[15] Autonomous transportation raises fascinating questions for America's mobile, technological future. How might a new iteration of passenger transportation

[13] David Nye, *American Technological Sublime* (Cambridge: MIT Press, 1994).

[14] Ruth Schwartz Cowan cleverly uses the story of the sorcerer's apprentice to talk about the unintended consequences of technology, specifically in relation to the automobile. *A Social History of American Technology,* 224-247. The theme of unintended technological consequences has received the most attention in terms of twentieth-century technology and in broad theoretical studies. See, for example, Edward Tenner, *Why Things Bite Back: Technology and the Revenge of Unintended Consequences* (New York: Alfred A. Knopf, Inc., 1996); Jacques Ellul, *The Technological Society,* trans. John Wilkinson (New York: Alfred A. Knopf, Inc., 1964); Langdon Winner, *Autonomous Technology: Technics-out-of-Control as a Theme in Political Thought* (Cambridge: MIT Press, 1977).

[15] "U.S. Department of Transportation Releases Policy on Automated Vehicle Development," National Highway Traffic Safety Administration (May 30, 2013). Accessed online at http://www.nhtsa.gov/About+NHTSA/Press+Releases/U.S.+Department+of+Transportation+Releases+Policy+on+Automated+Vehicle+Development. See also Lawrence D. Burns et al., "Transforming Personal Mobility," The Earth Institute, Columbia University (2013), accessed online at http://sustainablemobility.ei.columbia.edu/files/2012/12/Transforming-Personal-Mobility-Jan-27-20132.pdf.

transform public expectations of safety and the overall experience of travel? How will Americans respond to technological failures and deadly accidents caused by computer error? What unimagined social effects will arise when humans cede ever more control to technology?

In an 1860 essay entitled "Power," Ralph Waldo Emerson wrote, "All the elements whose aid man calls in will sometimes become his masters, especially those of most subtle force. Shall he then renounce steam, fire and electricity, or shall he learn to deal with them? The rule for this whole class of agencies is, – all *plus* is good; only put it in the right place."[16] Emerson's words were significant, written in the heart of a century during which steamboats and trains, America's celebrated destroyers of time and space, were destroying human life to a terrifying degree. They continue to be relevant more than a century and a half later. American society remains one that understands technological development and innovation as progress. It is unlikely that Americans will ever renounce the machines and devices that have made their daily existence faster, more efficient, more convenient, and more connected. Almost certainly, though, there will continue to be deep reflection and vibrant conversation about how, exactly, to fit these technologies into their right place.

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[16] Ralph Waldo Emerson, quoted in John Kasson, *Civilizing the Machine: Technology and Republican Values in America, 1776-1900* (New York: Hill and Wang, 1976), 134.

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