Introduction

Railroads, Miners, and Disorder in the Gilded Age, 1870–1900

To call the age “Gilded” was to joke that it offered promises of gold backed by realities of base metal. The Gilded Age took its name from the title of a satirical 1873 novel. To the book’s coauthors it was the false promise of effortless riches that seemed to best describe its time. In The Gilded Age: A Tale of Today, Mark Twain and Charles Dudley conveyed the idea of an era that truly appeared to be golden—but falsely. To gild was to merely coat with gold or with gold-colored paint. Gold was far too valuable, soft, and heavy to be part of actual construction. The exciting new world of steam power, railroads, electricity, and telegraphs was indeed shiny with promise, and it looked at times as if it must be gold, pure gold all the way through. This was an age, it seemed, in which the technological and financial limitations of the past were all falling away. Unimaginable riches and magical new technologies tantalized observers. Visitors to Philadelphia’s Centennial Exposition in 1876, or (even more so) the Columbian Exposition of 1893 saw incredible new technologies on display. Visitors could hardly miss the promise of the world that would be made possible by new technology and a national-scale economy. They came to these fairs from smaller, or at least dimmer, towns and cities to a bright new world of speed and change. By 1893 the Columbian Exposition promised electric lights, unlimited steam power, and instantaneous communication.

But what of the unshiny underpinning of the Gilded Age? In Twain and Dudley’s metaphor, after all, it’s the base metal that gives the age its shape, though not its shine.

The second part of their title, A Tale of Today may feel a bit like a sly warning to future readers. Perhaps we too might consider if the technological and financial promises of our age are not more blindingly reflective of our desires than they are magical. In 1962, science fiction writer Arthur C. Clarke wrote:
“Any sufficiently advanced technology is indistinguishable from magic.” Yet Clarke was well aware of the irony in his statement. Technology may have been indistinguishable from magic, but it was the opposite of supernatural. It only seemed to be magic for a brief spell. Even the most magical technology soon became mere technology. The Gilded Age magic of telegraphs, railroads, and electricity (or for that matter the wonders of any age) eventually reveals the costs and hard truths behind its promises. The new technology of the Gilded Age created dizzying new possibilities, but it also created a new cycle of problems of fuel, finances, and concentrated economic power.

This book focuses on a counterintuitive fact about Gilded Age industry: It gained its power from coal, a decidedly unmagical, dirty, and disorderly source. How did the Gilded Age of railroads and steam interact with its main fuel source? Coal production and distribution were unautomated, unmechanized, and unorganized. Coal miners dug coal out of the earth one lump at a time. Railroad managers, coal operators, and coal miners all tried and failed to bring order to the coal industry. The story of coal explains Gilded Age triumphs from their least glamorous perspective.

Coal made the Gilded Age glisten. Bituminous coal fed the railroads and steamships and spun the new factory machinery of industrializing America. Coal liberated wood-fired steamships and railroads from receding forests and water-powered mills from seasonal drought and frozen mill races. It allowed factories and transportation facilities for the first time to produce and distribute goods day and night, every day of the year, in every kind of weather. Coal burned at intense, predictable levels; coal-fired plants could hold to tighter schedules than those powered by wood or rushing water and could be capitalized at higher levels. Businessmen took advantage of coal’s unfailing energy to create elaborate railroad timetables and production schedules more attuned to the rhythms of steam engines than to human muscle.

In this sense, it was coal that enabled managers to strip craftsmen of their status; coal that freed intellectuals and corporate managers to embrace the seemingly more certain science of abstract economic theory over the seemingly less certain alchemy of democratic politics; coal that allowed financiers to fund factories and railroad systems of optimum scale and scope. In sum, coal helped to shift the nation from more stable, customary, and place-based loyalties to a faster paced, more dynamic, modern society.

Coal-fired railroads had a huge impact on the world and historians have paid attention. To use the language of textbooks, railroad corporations seemed to “rise” as if made of a substance lighter and purer than the smaller-scale local partnerships that preceded them. Railroads seemed like magic for
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A people used to moving at the speed of a walk. It wasn't merely their speed and size. Railroad economics, administration, and finance captured the nation's imagination. It was easy for anyone to contrast a railroad train to a horse-drawn wagon. Each additional horse-drawn wagon required an additional set of horses and drivers. Railroad economics meant that each additional freight or passenger car added almost nothing to the cost of a train. A horse-drawn wagon could carry as much as six, and possibly up to eight tons. A single railroad car could carry multiples of that amount. At speed. Similarly, the continent-wide scale of railroad enterprise awed observers. It wasn't merely this incredible new scale but also the ways that managers learned to administer their vast domains. The Gilded Age wasn't merely the first to fully harness the power of steam; it was also the first to fully harness the power of information. It was an age of clerks as well as engineers. Moreover, the scale of railroad stock and bond issues made Wall Street into the nation's dominant financial center. The story of the railroads was one of achieving previously unimaginable possibilities and of triumph.

The story of the coal industry that fueled the railroad is less triumphant. The coal industry defied order, both in the day-to-day manual labor of getting coal out of the ground and in the ways that it sold and marketed coal. It's a counterstory to the technological triumph of the railroads and large-scale
manufacturing. Unlike other industries in the steam age, human muscle continued to limit the pace of labor in the coal mines. There were few efficiencies of production or mechanization available to even the savviest coal operator. Coal miners, it's true, had the satisfaction of working largely unsupervised. Coal operators largely managed day-to-day production by working through local pit committees in each mine. Coal miners retained their craft control over the productive process and pace of coal mining. Coal miners hefted one lump of coal at a time and the essential technique and cost of producing a ton of coal changed little through the nineteenth century. But they paid for this so-called "miners’ freedom" with their lives. Novelist and journalist Stephen Crane wrote about coal miners after visiting a coal mine in 1894:

They are very ambitious. . . . If a man escape the gas, the floods, the “squeezes” of falling rock, the cars shooting through little tunnels, the precarious elevators, the hundred perils, there usually comes to him an attack of “miner’s asthma” that slowly racks and shakes him into the grave.¹

Coal came out of the ground in much the same ways in 1900 as it did in the previous several decades. As historian Keith Dix wrote regarding this phenomenon, “the advance in technology and management, which gave modern industry its momentum, bypassed the one industry on which most others depended.”²

The railroad and coal industries shared a mutual dependence that did much to prevent either from achieving a level of order. The problems of each affected the options of the other. The railroad industry depended on the coal industry for fuel and freight; the coal industry depended on the railroads for transportation and freight rates. By 1904, over 60 percent of the total tonnage of the Pennsylvania Railroad was made up of coal, coke, and (in substantially smaller quantities) iron ore.³ Overall, American railroads counted on coal to make up roughly one quarter of all railroad freight, and the railroads used roughly 28 percent of the bituminous coal produced in 1920.⁴ To usefully combine terms from business history, this book examines the inter-industrial complex of coal and railroads. In the language of labor historians, this book examines the unexpected agency of coal miners and coal operators in shaping the Steam Age. The changing history of the railroads serving the Eastern Seaboard affected the coal industry and coal miners. This is no surprise. Railroad managers had direct power over which coal operators received coal cars and how much they had to pay in freight charges.

More surprising are the ways that coal miners and coal operators eventually affected the options available to top railroad managers. Coal miners, coal
operators, and for that matter lower-level railroad managers had negative power to thwart the orderly plans of railroad executives. When coal miners struck, they “stopped wheels,” in the language of the time, and gave marginal coal railroads and coalfields an opportunity to expand. When coal operators and freight agents connived, they undermined the strategic initiatives of the railroad masters. As the Interstate Commerce Commission noted in its 1887 report, the memorandum book of the harried railroad freight agent was often the only record of rates, and his interests and his closest relationships did not necessarily match those of his superiors. Despite their designated role as saviors of the American economy and despite their best efforts, railroad executives failed to bring order to the coalfields. Coal operators and coal miner unions shaped the options available to railroad managers.
To examine the metaphorical place where the railroads came together with the coal industry is to tell a story that is neither entirely triumphant nor entirely tragic. It focuses as much on the structural limits to managerial capitalism as on its triumphs—on the persistence of disorder as well as the desire for predictable systems and the One Best Way. It includes labor unionism and local business in its narrative, not as pesky or even noble drags on productivity and change, but as integral components in the growth of industrial capitalism. This story integrates their constructive role in developing “ideas and systems that worked” in the creation of modern capitalism,” while maintaining the necessarily reciprocal links between modern capitalism and the men and women who worked and lived in particular places. It is to shift the focus on the Gilded Age from the shine to the shape.

Historical change often occurred because of innovation and competition and the efforts to realize the promise of new technologies, and historians have given these their due. Yet at times, historical change in the Gilded Age occurred in the ways that it did because of resistance to these factors. This book looks more toward the efforts of workers to negotiate the terms of their employment and to the essential tension between the increasingly international corporate scale and the advocates of specific towns and regions. At times, change occurred because of battles to avoid competition. At times, it occurred because workers and local businessmen combined to demand that their needs be met. At times, it occurred because local businessmen rebelled against international capital. To understand what “worked,” we must understand the ways in which people ad-libbed, fudged, and otherwise squirmed their way through the implications of technological change, and through that process created cultures and institutions that rarely ran as originally intended.

Each of the main parts and their chapters builds upon the others to create an analytical narrative. They dwell on how coal miners, coal operators, and railroad managers improvised partial solutions to ongoing problems and responded to each other’s moves with moves of their own. This focus on improvisation shows the newness of the organizational loyalties and authority between levels of corporate enterprise, labor unions, and market regions as they were created. It shows the ambivalence of midsized businesses as they found themselves alternately enabled and thwarted by railroad managers. It shows the mutual impact of railroad freight rate wars and the technological backwardness and decentralized nature of the coal industry. It shows the ways that lower-level actors came to acknowledge the power of those above
them even while they maneuvered to resist it. It shows how upper-level actors came to acknowledge the power of those below them even while they maneuvered to control it.

The overall structure of this book demonstrates how people and organizations learned and evolved in dynamic ways over time. It tells a story, not so much of how Americans learned to avoid disorder and conflict, but of how they learned to live with it and to turn it to their own ends. It lays out a three-part narrative arc: Hubris, a brief moment of Humility, and a more lasting Stalemate. The three chapters of Hubris describe how railroad managers sought different ways to subordinate and administer the coal industry in service of their larger wars with each other even as coal miners responded by evolving different sorts of organizations (1. Cultural, 2. Formal, and 3. Secret). The single chapter of Humility (4. Compromise) shows how coal operators and coal miners attempted to create a limited set of associations and agreements separate from the railroads. The three chapters of Stalemate show the interaction between three stories of ongoing creation and evolution—those of the United Mine Workers of America (UMWA), of the coal operators’ Seaboard Coal Association, and of the nationally-scaled railroad system. Because these stories exist in relation to each other in this book, these chapters (5. Origins, 6. Association, 7. National Scale) show the ways
that the different actors kept each other off-balance, and explores the limited nature of their success. Ultimately, neither the railroads, nor the coal miners, nor the coal operators would be able to entirely defeat the others. The Conclusion (Failures of Order in the Gilded Age) engages with the broader implications of the preceding story. What does it mean to look at the marginal nature of success rather than to its tendency to reorder history in its wake? What does it mean to tell the story less as if history’s winners were fated from the beginning? It puts ongoing conflict and disorder at its center. It points to the ways that we have come to live with the inevitability of error, disorder, and the unknowable nature of the future to the present.

This story is set in a specific geographical area, but a shifting one: the bituminous coal mining region that shipped to the Eastern Seaboard. Most coal destined for eastern markets in the 1870s came from Central Pennsylvania and Maryland, but in the 1880s it came to include more marginal fields in Virginia, West Virginia, and North-Central Pennsylvania. (There are two main kinds of coal, namely, bituminous, which is broadly scattered through much of the continental United States, and anthracite, which is found almost entirely in a small region of Eastern Pennsylvania.) Previously reachable only by bad roads or by rafting the Susquehanna River at flood, the Central Pennsylvania area lay west over the mountains from the “Agricultural College of Pennsylvania” that would become Penn State University. On a Pennsylvania Railroad map printed in 1870, Central Pennsylvania stood out as an almost empty spot in a state otherwise cobwebbed with railroad lines. Located just east of the divide between the Ohio and Susquehanna river valleys, at the source of the Susquehanna’s West Branch, the Central Pennsylvania region was so isolated that Pittsburghers and Philadelphians dismissed it as, respectively, too “eastern” or too “western” to warrant notice. Central Pennsylvania loggers used local pine forests and the wide, shallow Susquehanna to supply a bustling lumber trade downstream at Lock Haven and Williamsport. The sheer front of the Allegheny Mountains bounded its southeastern border. To the south and north ran the Pennsylvania and the Philadelphia & Erie Railroads. The Tyrone & Clearfield Railroad ran south to link it to the Pennsylvania Main Line.

The single thread of the Tyrone & Clearfield Railroad would soon tie Central Pennsylvania to the system of railroads that served the Eastern Seaboard. When the Tyrone & Clearfield Railroad joined the Pennsylvania Main Line to the high-quality bituminous coal seams in Central Pennsylvania in 1870, it
complicated the nature of the coal mining region shipping to the East Coast. Previously most eastern coal came from Maryland, with a smattering from Virginia and from Pennsylvania’s Huntingdon and Tioga counties. Starting in the 1880s this system gained an additional measure of complexity by expanding to include new railroads and regions. The eastern coal region expanded to include North-Central Pennsylvania through the efforts of the New York Central Railroad and West Virginia through the Norfolk & Western and the Chesapeake & Ohio railroads. This region supplied America’s rapidly expanding steam-powered industry and railroad locomotives all along the Eastern Seaboard, from Norfolk through Baltimore, Philadelphia, New York City, and Boston, as well as ocean-going steamers and naval coal dumps.

Up until the turn of the century each regional railroad sought to simplify this system by administering the coal industry within their regions to their own ends. Yet their efforts required coal operators, coal miners, and their own freight agents to subordinate their interests to the plans of top railroad executives. As long as coal miners in an entire railroad region could call an effective strike, railroad managers were unable to use lower labor costs in the mines to put their competitors out of business. As long as coal operators could persuade, lie to, cheat, or bribe freight agents to gain preferential freight rates, railroad executives were unable to carry out their pooling agreements. As long as railroad managers could withhold coal cars or preferential freight rates for coal operators who negotiated with their coal miners there would be no stability from agreements between coal operators and miners.

Starting at the turn of the century railroad managers of the newly consolidated eastern railroads would attempt to settle on a new national scale system with which to simplify management of the entire eastern coal/railroad industry. They merged ownership of all the railroads shipping East and recentered the coal trade on large-scale coal mines in West Virginia and Somerset County, Pennsylvania. In part, their plan worked. From roughly 1900, they would make these the dominant coal regions for much of the nation, from the East Coast to the Midwest. Yet their efforts only simplified this one aspect of the coal industry. The rest of the coal and railroad industry that had been built by this time did not disappear. Railroads had built thousands of miles of tracks, stations, and repair facilities in existing coal regions and they retained their obligations to those areas. The newly dominant coal regions could not supply all customers at all times. Organizations of operators and coal miners continued to push for a share of the industry.

In this way the battle between railroads for dominance (well-documented), and the battle to defeat coal miner unionism (well-documented)
are linked to each other by the battle of railroads to control a major industry, coal, on which they depended (less-well-documented).\textsuperscript{11}

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The story begins in 1872 just before the Pennsylvania Railroad took over the newly bankrupt Tyrone & Clearfield Railroad spur to the Central Pennsylvania coal regions, and just as the region’s coal miners struck for higher pay. When the coal miners first called the strike, railroad management played little direct role in the Central Pennsylvania mining industry. It was a minor-key conflict between local coal operators and local coal miners. After the Pennsylvania Railroad took over the Tyrone & Clearfield branch railroad, it would use low freight rates to subsidize coal production along its lines in Central Pennsylvania, and it would eventually come to take a direct interest in miners’ wages, unions, and strikes. This story ends at the dawn of the Progressive Era as the Pennsylvania Railroad merged with the nation’s major railroads. It was only at this time that the Pennsylvania Railroad ceased to sponsor Central Pennsylvania coal operators with secret freight rates, and that Central Pennsylvania’s United Mine Workers’ of America regional organization signed contracts with most of the region’s operators. At the same time, the Pennsylvania Railroad along with the rest of the major railroads decided to shift the center of bituminous coal production to West Virginia and to Somerset County in Southern Pennsylvania.

This is when most histories of the American coal industry and its workers begin. The coal industry’s greatest battles took place at the turn of the century. The context by this time included the efforts of a well-funded bureaucratically organized UMWA to organize a national-scale industry in the shadow of West Virginia’s cheap labor, easy-to-mine coal, and the privileged position of that state in the nation’s transportation system. West Virginia’s union battles included armed battles and bombs dropped from airplanes. The first decades of the twentieth century saw coal mines developed across the entire country, including the mines at Ludlow, Colorado, that would soon be the site of machine gun massacres. The context of the time included the fully formed UMWA, a hierarchical, legalistic mass labor union. It included an already triumphant integrated railroad system and corporations of a scale and scope unprecedented in world history. Yet the rise of Wall Street financiers and consolidated industries such as steel and railroads only seemed to mark an end to the business cycle of boom and bust, and to the power of unions or local businesses. They created seemingly orderly structures through a disorderly process, and through ongoing failures to achieve order.\textsuperscript{12}
The promises of steam power, high finance, and railroads never quite became as stabilizing as their advocates wished to believe. People at the time acted despite the dynamic fog of change that is the hallmark of the modern world. To focus more on the disorder they lived with rather than the order they desired is to respect the challenges that they faced and to acknowledge the limits of their success. As historian Sean Patrick Adams states, “At century’s close, the coal industry defied control.” This book explores the history of coal’s defiance.