

THESIS

FRONTIER BEER: A SPATIAL ANALYSIS OF DENVER BREWERIES, 1859-1876

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ABSTRACT

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American breweries in the nineteenth century offer a business-based lens to understand immigration and industrialization. For this reason, historians in recent years have turned increasing attention to the history of beer, particularly in individual cities such as Chicago or St. Louis. This study examines brewers in Denver from the 1859 Gold Rush to statehood in 1876 and attends to spatial challenges they faced as a result of ethnic and industrial conditions within and far from the city. Over this period, the brewing industry transitioned from several small breweries into a handful of high-producing businesses. Distance to necessary materials, equipment, and customers posed tremendous hurdles to brewers and elicited creative solutions. Breweries thus fulfilled cultural and industrial desires by overcoming geographic obstacles. They condensed space within Denver and the nation through railroads, replaced craftwork with industrial labor, and attempted to structure transitory labor in the American West.

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Introduction

In 1870 William H. Young, proprietor of the Pueblo Brewery advertised it as “the Best Ale in Colorado; Unsurpassed by any in America!”¹ Later that year Mr. Weiss & Co. took over operations.² By September of 1871 Weiss “disposed of his brewery to certain parties from Chicago, for the sum of five thousand dollars.”³ By December 1872, P.P. Kuhn assumed proprietorship, renamed it the Pueblo Brewery Saloon, and “fitted [it] up in first class style” which included offering liquor, cheese, tripe, and pigs feet in addition to beer.⁴

Pueblo Brewery’s fluctuating ownership, makeovers, and customer enticement efforts exemplifies nineteenth-century Colorado breweries’ choices. Pueblo Brewery lasted many years and maintained a considerable production, but Pueblo remained one of the smaller hubs for brewing. These tumultuous years in one brewery’s history are common within the brewing business in nineteenth-century Colorado. Denver, home to more, and bigger, breweries than Pueblo, faced similar obstacles on a grander scale. Between 1859 and 1876 Denver brewers fought tenaciously to acquire resources, materials, and labor to brew beer, which they marketed in a competition rich environment. Individual breweries’ ability to navigate and overcome various obstacles is a function, and a force, of their capital and long-term brewing goals.

Gold drew miners and prospectors to Cherry Creek at the foot of the Rocky Mountains in 1858. They realized the gold was further in the mountains, and ventured on. Others remained along the creek and built up two towns. The first, St. Charles—later Denver City, then Denver—

¹ *Colorado Weekly Chieftain*, January 6, 1870. Page 3, column 6.

² *Colorado Weekly Chieftain*, November 10, 1870. Page 3, column 2

³ “The Pueblo Brewery,” *Colorado Weekly Chieftain*, September 28, 1871. Page 3, column 4.

⁴ P.P. Kuhn *Colorado Daily Chieftain*, December 15, 1872. Page 4, column 1. Pueblo Brewery was a prominent business and operated through the period studied here.

was built on the northeast side of the creek in September 1858. The next month Auraria was built on the other side of the creek. From these beginnings, Denver emerged and swallowed up both sides of the water. City planners laid out lots, merchants set up shops, and people came across the Great Plains to buy mining supplies before trying their hand at prospecting. Those that were successful spent their gold dust in Denver, which then sent the gold east to purchase additional mining and town-building supplies. Newspapers, led by William Byer, wrote stories, reported the news, and appealed to Americans to come to the new city. Denver for many years was a largely male town focused on mining. Over the years, diverse business emerged contributing to Colorado becoming a territory in 1861 and a state in 1876.⁵ It is within this town built along Cherry Creek hopefully oriented towards gold-filled mountains filled with people searching to create a new life for themselves that this story takes place.

White Coloradoans consumed alcohol at a massive per-capita rate. Anxiety and community constitute negative and positive forces for alcohol consumption. Life in mid-nineteenth century Colorado was dangerous. Mining accidents, disease, fears of Indian attacks, shootings, and other forms of violence and insecurity were rife in Colorado.⁶ For example, in 1866 a workman fired a presumed unloaded gun, igniting several gunpowder barrels and destroying a store.⁷ In 1860, the *Rocky Mountain News* put out a call to the city council that “shooting in the thickly settled portions of the city is reckless” and stray bullets endangered everyone.⁸ To cope, men—Colorado was primarily a male space – drank to calm their nerves and to help assuage the anxieties of life on the frontier. Part of combatting anxiety was community

⁵ Stephen Leonard and Thomas Noel, *Denver: Mining Camp to Metropolis* (Niwot, CO: University Press of Colorado, 1990), 3-6, 22-25.

⁶ Clare V. McKanna, Jr. "Alcohol, Handguns, and Homicide in the American West: A Tale of Three Counties, 1880-1920." *The Western Historical Quarterly* 26, no. 4 (1995): 455-82.

⁷ *Denver Directory 1866*.

⁸ “Careless Shooting,” *Rocky Mountain News*, December 14, 1860. Page 3, column 2.

with friends who faced the same challenges. Saloons were familiar places, where men could experience a convivial, warm, and enjoyable environment. Primarily, the beverage consumed at these institutions was whiskey.

Although drinking was intended to ease anxieties, whiskey itself caused concern.⁹ Abundant, whisky's purveyors prioritized stretching their stock over offering a high quality product. At worst, it caused serious illness, paralysis, and even death as various appellations illustrate: forty-rod (so called for its killing distance), San Juan Paralyzer, rotgut, or snakebite.¹⁰ Snakebite whiskey was named not only for its potency, but also for its purpose; whiskey was seen as medicine in this time, and many believed it could combat poisonous snakebites. In light of whiskey's dangers, beer offered a safer alternative.

Much of the historiography of alcohol in nineteenth-century Colorado and Denver has focused on the lucrative and ubiquitous whiskey trade. Liquor found its way into the mining camps in a number of ways and in massive quantities, and filled an important role in mining life and diet. The late historian William Unrau pointed to 1827 as a pivotal year in the western liquor industry. In this year, the Santé Fe Trail acquired facilities on both ends to ensure a flourishing liquor industry. James Aull established a store in Leavenworth, Kansas and ordered several barrels of whiskey to ship west to Santé Fe.¹¹ Additionally, three men—Mathew Kinkead, Samuel Chambers, and William Workman—partnered and created the first large-scale distillery

⁹ Indeed, there was reciprocity in the relationship between whiskey and anxiety. Anxiety led to drinking which, as Clare McKanna has noted, often led to lethal arguments, which in turn led men to drink. See McKanna, "Alcohol, Handguns, and Homicide in the American West." See also Duane Smith and Ronald Brown, *No One Ailing Except a Physician: Medicine in the Mining West, 1848-1919* (Boulder: University Press of Colorado, 2001).

¹⁰ Elliot West, *The Saloon on the Rocky Mountain Mining Frontier* (Lincoln: University of Nebraska Press, 1979), 12-13.

¹¹ William Unrau, *Indians, Alcohol, and the Road to Taos and Santa Fe*, (Lawrence: University Press of Kansas, 2013), 27-8.

in Taos.¹² Taos distillers produced whiskey, endearingly nicknamed “Taos Lightning,” in such large quantities it not only saturated local markets, but reached north to the Arkansas and South Platte rivers.¹³ Voluminous whiskey production and trade meant when prospectors trawled the mountains looking for gold, they did not have to look far for whiskey.

The attention whiskey has received from historians is warranted from sheer volume. Interestingly, the whiskey trade was so productive that Denver did not possess distilleries until after 1876. One attempted to open in 1860, but it was a “Kerosene and Creosote distillery” and did not succeed.¹⁴ The 1870 census reports no distillers in the state, and only by 1880 had four successfully opened.¹⁵ It was far more profitable to distill the grain in the east—closer to where it was grown—and have the spoil-resistant liquid sent west. No doubt, whiskey was an important commodity in nineteenth-century Denver. Yet, German Denverites desired and brewed beer. In doing so, they imprinted Denver’s physical and economic nature with a powerful ethnic character.

Beer was available from the first days of the Colorado Gold Rush. When miners came to Colorado in 1859 beer and brewers soon followed. Though the 1860 census reported five brewers to the roughly twenty-two thousand miners. By 1880, there were 154 brewers hydrating the approximately 30,000 and nearly 200,000 Colorado inhabitants.¹⁶ Solomon & Tascher in Denver hold the distinction of the first official brewing business and in 1859 ran an

¹² Ibid.

¹³ Ibid., 117.

¹⁴ “Absent,” *Rocky Mountain News*, December 14, 1860. Page 3, column 4.

¹⁵ U.S. Census Bureau *The Number of persons in Each State and Territory Engages in Each Selected Occupation 1870* 723. U.S. Census Bureau, *The Number of persons in Each State and Territory Engages in Each Selected Occupation 1880*, 764.

¹⁶ U.S. Census Bureau, *Classified Population of the States and Territories, By Counties on the First Day of June, 1860*. 546. U.S. Census Bureau, *Statistics of the Population of the United States June 1, 1880*, 4, 764.

advertisement promoting their brewery and their soon-to-be-tapped lager beer.¹⁷ This beer style is paramount to understand Denver brewing.

Lager beer is deeply rooted in a Germanic brewing heritage. Lager is a derivative of *lagern*, a German word meaning “to store.”¹⁸ Sixteenth-century Bavarian monks first practiced brewing in the fall and cellaring—or lagering—their beer over winter for the spring.¹⁹ That Denver’s first beer brewed was lager rather than ale or porter suggests German, rather than English or Anglo-American, roots of Denver brewing. Henceforth, the term “cultural brewing” will denote brewing lager beer and its attendant methods, ingredients, and German history to distinguish it from the countless other global brewing methods.

By 1866, breweries gained a foothold in Denver, yet brewers’ success was never certain, and they existed in a precarious, often contested, space. Colorado brewing underwent considerable industrial transformation between 1859 and 1876 and maps onto the cultural, political, and economic transformation within the state from the discovery of gold to achieving statehood. Brewers faced three primary challenges: raw material acquisition, labor and production, distribution and consumption. It is no coincidence that three steps follow the brewing process itself; at each step throughout brewing, agricultural limitations, division of labor, temperance reformers, and other brewers in Denver and along the Front Range challenged enterprising brewers.

Immigration patterns and industrialization in America generally and Colorado specifically fundamentally inform Denver brewing. Immigrants’ success varied wildly, often depending on the amount of wealth they brought with them across the Atlantic and into

¹⁷ “Lager,” *Rocky Mountain News Weekly*, November 3, 1859. Page3, column 1.

¹⁸ Andrea Pavslar and Stefano Buiatti, “Lager Beer,” in *Beer in Health and Disease Prevention*, ed. Victor R Preedy (Burlington, MA: Elsevier, 2008), 31.

¹⁹ *Ibid.*

Colorado. Generally, Germans fared better than other ethnic groups, and their economic stability allowed them to construct cultural spaces—breweries, beer gardens, etc.—to a greater degree.²⁰ In the 1860 census, almost three million of the four million people in America who claimed foreign nativity were from Ireland or Germany.²¹ Of these, 1,200 lived in Colorado, out of a population of 31,000.²²

Capital Germans brought to Denver shaped the ethnic character of labor. Stephen Leonard notes that in 1870 there were twenty-two Germans with over \$4,000 totaling \$465,000. The next wealthiest groups were nine Frenchmen with a combined \$129,000.²³ This amount of wealth enabled Germans to buy facilities and hire laborers for brewing. It also contributed to the massive inequality in Denver between those who came looking for gold and those who brought it. The dual forces of immigration and industrialization bifurcated wealth generally in America during this time, and in booming Denver immigrants with money controlled patterns of industrialization.

Although only four percent of the overall population, German immigrants Germans had an outsized influence on brewing. In 1870 Colorado, of the fifty-four people involved in brewing and malting, thirty-four were German. These men were also among Denver boosters and wrote pamphlets advertising Denver to Germans abroad.²⁴ Americans—eight in total—were the next

²⁰ Stephen Leonard, “Denver’s Foreign Born Immigrants, 1859-1900,” (Ph.D. diss. Claremont Graduate School, 1971), 90-93.

²¹ U.S. Census Bureau, *Recapitulation of the Tables of Population, Nativity, and Occupation, 1860*. 621-623.

²² U.S. Census Bureau, *Recapitulation of the Tables of Population, Nativity, and Occupation, 1860*. 623.

²³ Leonard, “Denver’s Foreign Born Immigrants,” 97.

²⁴ Lyle Dorsett, *The Queen City: A History of Denver* (Boulder: Pruett Publishing, 1977), 57-9.

largest category, some likely naturalized Germans.²⁵ This is representative of national statistics; in 1870 the US census reported 6,700 German brewers to only 2,700 American.²⁶

German immigrants such as Frederick Salomon, Moritz Sigi, John Good, and Phillip Zang owned the major breweries. They partnered, competed, and sold breweries among each other over the 1860s and 70s. Salomon, a Polish immigrant and an exception, partnered with Charles Tascher, a German immigrant, opened the Rocky Mountain Brewery in 1859. In a few months, Tascher left the partnership replaced by Charles Endlich and John Good (born Guth in Alsace-Lorraine). Salomon left in 1861, Endlich died in 1864, leaving Good in charge. Good brought Zang, also a German immigrant, into his company as a brewer and later sold the company to him.²⁷

Industrialization dramatically transformed American production, and brewing certainly benefitted. Nationally, breweries grew in size and increased their production by replacing wood with coal energy, and manual laborers with energy-saving piping and equipment. Major coal reserves were found in southern Colorado after the Civil War; much of this coal was transported to Denver and sent east.²⁸ Likely, this coal fueled the foundries in Denver and the east that forged brew kettles, provided heat for malting and brewing, and in so doing allowed greater and more uniform brews.

²⁵ U.S. Census Bureau, *The Number of Persons in Each State and Territory Engaged in Each Selected Occupation and Class of Occupations, with Distinctions of Ages and Sex and of Nativity*, 723. Many Germans did not come straight from Europe, but instead percolated through the nation from east to west, creating time for them to be naturalized. For more, see Stephen Leonard, *Denver's Foreign Born Population*, 99.

²⁶ U.S. Census Bureau *1870 Census: Volume 1. The Statistics of the Population of the United States*. 711.

²⁷ Margaret Coel, Jane Barker, and Karen Gilleland, *Tivoli: Bavaria in the Rockies*, (Boulder, CO: Colorado and West), 1985. 7-10. Robert W. McLeod, *Ghost Breweries of Colorado*, (Arvada, CO), 2016. 10-14.

²⁸ Thomas Andrews, *Killing for Coal: America's Deadliest Labor War*, (Cambridge, MA: Harvard University Press, 2008), 3, 53-4.

This study examines the Denver brewing industry from 1859 to 1876, though the heart of the study is from 1866 to 1876. Bracketing this time frame on the front end is the discovery of gold in Colorado and the ensuing Gold Rush, in which Denver emerged as a prominent transfer and supply depot. These years follow the birth of Colorado brewing, its expansion and consolidation, and Denver's entrance into the larger national economy. After this period, the beer industry experienced a major shift in the 1880s with the advent of pasteurization and national distribution.²⁹ Milwaukee and St. Louis industrial breweries shipped mass-produced beers west and devastated smaller Denver breweries. Additionally, one purpose of this essay is to dethrone Coors from the dominant historical narratives of Colorado beer. Adolph Coors did not begin his business until 1873, at which point he was still far from the dominance he eventually achieved by the 1880s. Smaller breweries do not end when Coors begins, and the three years of overlap intend to show that Coors was part of a vibrant brewing industry.

This thesis's analysis differs in methodology and scope from prior studies. First, it employs spatial analysis to understand social cartography. Defining spatial analysis is tricky given its malleable nature. Geographer Waldo Tobler posited the first law of geography as "everything is related to everything else but near things are more related than distant things."³⁰ This definition allows the following maps to show proximity and imply some relationship between the two objects. Breweries proximity or distance from saloons and churches reveals a relational connection between them. The closer two objects are, such as a brewery and a saloon, implies a tighter connection between those two businesses.

²⁹ Amy Mittelman, *Brewing Battles: A History of American Beer*, (New York: Algora Publishing, 2008), 39. The dual forces of pasteurization and national railroads mark a move towards major industrialized breweries that devastate local breweries.

³⁰ Waldo Tobler, "On the First Law of Geography: A Reply," *Annals of the Association of American Geographers* 94, no. 2, 304.

Beyond this law, there are other ways of understanding spatial analysis and history. Geographers Xiang Nanping and Han Xianjue compiled and compared numerous working definitions to inform their own. “Spatial analysis,” they wrote, “is to reflect the state of geographic space and the regularity of its movement, and that the definite objective of spatial analysis is spatial objectives.”³¹ Spatial objectives are data points that possess spatial information. In essence, they viewed spatial analysis as a tool to view geographic change over time. For example, breweries on a map contain information about places, the people attached, and relationships to other institutions within the city.³²

While spatial analysis can be applied to any number of living or non-living objects on earth, social cartography is the application of spatial analysis to people. Laura Vaughan’s *Mapping Society: Spatial Dimensions and Social Cartography* defined social cartography as “the creation of maps whose purpose is to represent specific aspects of society at a given time and place.” Additionally, Vaughan explained its potential to explore how “the relationship between society and space can shed light on fundamental urban phenomena that normally tend to be seen purely as by-products of social structures.”³³ Although spatial analysis undergirds this process, social cartography is more immediately applicable to this study. Denver’s urban breweries function only as an extension of their human environment. Brewers need a customer base, to build and maintain networks to facilitate brewing, and to create a product acceptable by consumers.

³¹ Xiang Nanping and Han Xianjue “Definition and Contents of Spatial Analysis” in *Journal of Central South University of Technology* 4, no. 1 (1997): 31.

³² *Ibid.*, 29.

³³ Laura Vaughan, *Mapping Society: Spatial Dimensions and Social Cartography* (London, UCL Press, 2018), 1.

The second methodical inspiration comes from urban-hinterland geographic studies, such as William Cronon's *Nature's Metropolis*.³⁴ His analysis of the hinterland that fed industry in the core overlays how Denver brewers oriented resources towards themselves. To gather ingredients, brewers pulled from regions across the country to sustain their business. Grain, hops, and coal were imported from hinterlands stretching from Great Plains to the Atlantic and Pacific coasts.

Third, food studies undergird this history. Food studies are a relatively new interdisciplinary sub-field that holds the core assumption that consumption of food and drink matter in understanding human relationships. Here, the manner by which beer is brewed and drunk is important in a social and cultural sense that extends beyond economics. Beer consumption was a convivial event bringing ethnically related people together in a new land.

Another not a scale of analysis undertaken here, gender plays a crucial role in brewing in Denver and the nation in the nineteenth century. The actors in this story are men; the brewers, maltsters, laborers, and indeed the majority of customers are male. These brewers inherited a European brewing tradition, that, during the nascent stages of industrialization, men became the primary brewers and continued to be so over the next several centuries.³⁵ In addition, Denver's gender ratio tilted heavily towards males, and though women may have worked in some capacity in breweries' taprooms, it likely was in a gendered capacity such as servers or cooks. A further study could address the gendered nature of brewing and the unacknowledged work women surely did in, and for, these brewers.

In terms of scope, many other works have examined Denver spatially and ethnically. Two of the most noted examples are Stephen Leonard's 1971 dissertation "Denver's Foreign

³⁴ William Cronon, *Nature's Metropolis: Chicago and the Great West* (New York: W.W. Norton, 1992).

³⁵ For more on women and brewing, see Judith Bennett *Ale, Beer, and Brewsters in England: Women's Work in a Changing World, 1300-1600*, (New York: Oxford University Press, 1996).

Born Immigrants, 1859-1900” and Thomas Noel’s *The City and the Saloon*. Leonard’s work examined class and ethnicity’s relationship through differing work, housing, and wealth between and among ethnic groups. One of the important consequences of this is how people construct spaces that appeal to their ethnic and class identity. Noel’s book furthered this and mapped saloons in Denver and analyzed spatial relations to ethnic neighborhoods, jobs, and the multifunctional role that saloons often filled.

Where this study departs from previous ones is through the synthesis of these conceptual frameworks and its application to beer. Examining beer in Denver spatially allows a different set of questions to be asked. How did breweries’ locations assist or hinder their access to raw materials and labor? How did brewers find workers or purchase equipment? What competing institutions—such as other saloons or churches—would someone walking to a brewery confront? In effect, this study seeks to understand the daily internal and external functioning of breweries in Denver through more than a decade. By exploring breweries a fuller picture of Denver in the years before statehood and the impact breweries had on city and state development emerges.

To answer these questions, this study relies on Denver City Directories, Census reports, and newspaper advertisements for the bulk of the information. Directories reveal not only where breweries were, but also how many workers they had and where they lived. William Byer, an early city booster and editor of the *Rocky Mountain News*, compiled them.³⁶ This newspaper provides the bulk of evidence on brewery expansions, sales, bankruptcies, and advertisements. A keen salesman, Byer endeavored to promote Denver businesses and filled his directories and newspaper with advertisements. Through his many outlets, he consistently advocated Denver’s multiple advantages over other Front Range towns.

³⁶ I have aggregated much of the data in these directories, and after the first citation shall be abbreviated DDD for Denver Directory Data.

Census data provides demographic data on the ethnic composition of Denver and the status of the brewing industry. Finally, because the directories are missing for the years 1867-70, and because censuses are only taken every ten years, newspapers substantiate the absent years. Brewery closures, openings, or changes in ownership during missing years can be deduced from newspaper articles or advertisements. In general, dynamism will be assumed in cases where the brewery exists on one side of the divide but not the other; conversely, assumed stasis for breweries operating on both sides of 1866 and 1872.

This is by no means a perfect approach, and there are several obstacles posed in addition to the missing years. First, some entries in the directories lack information. For example, as “Pemberton, James, brewer, Denver Ale and Brewing Co” could mean that he lives at the brewery, he works there, or both.³⁷ In these cases, I assumed people preferred to tell the directory their employment rather than residence. The disconnect between modern and historic addresses pose another issue. When possible, I have followed the directory as it reads. When it lists only an intersection, I have placed the building on the southeast corner. There is no particular reason why except the need for a consistent anchor.

I generated a number of maps to explore the spatial elements of this thesis. Using ArcGIS, I georectified an 1873 city map onto a current map of Denver. Georectifying is the process of overlaying an image, in this case the 1873 map, over a current map. This allows me to use the 1873 map and measure distances on it. Denver has changed substantially since the 1870s, and most of the area under study here has been substantially changed. Then, I plotted onto the city business and personal addresses. From there, distance between businesses, clusters of

³⁷ Stephen Hart Research Library, History Colorado Center. *Corbett & Ballenger's Annual Denver City Directory*. Corbett, Hoye, and Co. Denver, 1859-1876. It is entirely likely both are true. This was often the case for saloonkeepers during this period.

industry, and other spatial networks can be examined. Calculating the mean center, the center of all data points, and the first standard deviation for saloons in 1866 and 1873, and churches from 1859 to 1876 illustrates the concentration of these institutions. After calculating this, then the first standard deviation—sixty-eight percent of the data—can be found and mapped. These tools offer a picture of daily life in Denver for brewers by positioning them in relation to what they need and their competition.

Denver's current affinity for craft beer has reinvigorated examinations of the city's beer history. This study is fully part of this effort to reexamine Colorado's long relationship to brewing. A contention here is Denver brewing history is turbulent and no direct line can be drawn today to the nineteenth century. The gulf of Prohibition, decades of 3.2% beer regulations, and technological advances separate the craft brew movement today from the "Mountain Ale" served at the Washington House in 1867.³⁸ In addition, historical taste cannot be replicated. Water minerals, quality and uniformity of ingredients, and storage practices differ considerably from our own time. Perhaps in a platonic sense beer remains the same, in reality the brewing industry's techniques and regulations bar us from truly recreating historic beers.³⁹

The first chapter explores how brewers gained access to the essential materials to create beer. Denver's distributary position and high population attracted goods from all directions. On a municipal, state, and national level, this chapter asks how space challenged Denver brewers, how they responded to spatial obstacles to acquire necessary ingredients to brew, and how they endeavored to condense space. More than the others, this addresses the cultural desire and requirements for beer and the ensuing spatial challenges. Chapter two examines where and how

³⁸ *Rocky Mountain News*, November 4, 1867. Page 1, column 2.

³⁹ For more on efforts to recreate beer, and inherent issues, see Patrick McGovern and Sam Calagione. *Ancient Brews: Rediscovered and Re-created* (New York: W. W. Norton & Company, 2017) and recent work by Travis Rupp.

brewers recruited labor, produced beer, and industrialized brewing. This will focus more on the internal functioning and material culture of the brewery, asking what brewers needed—in terms of space, labor, and equipment—to create beer and what was the nature of inter-brewery relationships. In particular, this chapter examines the domination in the 1870s of big, west-side breweries over small, east-side ones. Industrial dimensions of brewing—the need for larger kettles with commiserate fuel and storage to brew more beer and grow the business—offers another set of spatial challenges.

Beer was not made to sit on shelves, and the third chapter maps where beer was consumed, distributed, and what forces acted against drinking and selling beer. It investigates as a business, how did brewers differentiate themselves from their competitors and what was their distribution process and reach. In particular, this chapter examines the economic competition from saloons and the social competition from growing Temperance.

Through this study, I aim to prove that brewers faced numerous spatial obstacles to their business, and the most successful brewers were those who best navigated their geographical constraints. In addition to space, brewers also contended with business and moral competition. A significant divergence emerges between brewers located in West or East Denver—divided by Cherry Creek—that is largely influenced by their access to resources. Although major and minor breweries are not completely divided by the creek, it does provide a useful guide for examining the development of breweries. Major breweries are those with annual production of two hundred barrels or 6,200 gallons of beer.⁴⁰ Minor breweries are those who produced less than this, or those that were in business less than a year. Often, minor brewers fulfilled both categories: they were short lived with low production. Alex Davidson ran a brewery in 1871 on the east side of

⁴⁰ One beer barrel is equivalent to 31 gallons, the latter measurement will be used throughout.

Denver. If it is the same person, in 1873 he worked as a teamster and the next year as a freighter. The transitory nature of work will be discussed further in chapter three, but it is important to note here that minor brewers did not work in brewing as a career in either their own or in another. It likely was a stopgap opportunity.

Also, this study seeks to center Denver within the Colorado brewing industry as well as within a national network of raw material trade. For Denver brewers, or indeed any brewer in Colorado, to survive, this was a necessity. Beyond this, Denver's connection to national trade routes also brought them into contact with national movements, particularly the Temperance Movement. Drys—those against alcohol consumption—saw hard liquor as their primary enemy, but beer was by no means exempt from their agenda.

Cultural affinity for beer rather than the host of available alcohol and the emerging industrial nature of brewing posed spatial challenges for career Denver brewers. In all, the driving question undergirding these chapters is how an examination of nineteenth-century Denver breweries illustrates larger America themes of immigration, industrialization, and commerce. The answer put forth here is that breweries fulfilled cultural and industrial desires as they overcame geographic obstacles. They condensed space within Denver and the nation through railroads, attracted labor and industrial equipment and attempted to structure transitory labor in the American West. These brewers were well aware of, and sought to address, the fact that distance mattered.

Chapter One

Simple Beer Necessities: Water, Grain, and Hops

In 1870, J.E. Bates—proprietor of Denver Ale Brewing Co.—used 96,000 pounds of barley, 200,000 pounds of coal, and 4,000 pounds of hops to brew 31,000 gallons of beer.⁴¹ The quantity of beer he produced is a testament to his perseverance and business acumen to overcome obstacles in the way of frontier Denver brewers. The early decades of Denver’s existence were a difficult time for manufacturers—particularly brewers—to acquire necessary raw materials. Brewing foundationally relies on water and grain. Unfortunately for brewers they are also foundational to other businesses and necessary to everyday life. Brewers occupied the nexus of a national agricultural trade system that stretched from the Atlantic to the Pacific. Disadvantaged by Denver and Colorado’s precarious agriculture and loose connection to the rest of the nation, larger breweries advantageously condensed the distance to resources and railroad depots.

Condensing space meant decreasing the time between extraction and use, ultimately decreasing costs and ensuring a higher quality product. For water this meant hauling from wells or streams, for grain and hops this is when they were harvested. To condense space and overcome issues of distance, Denver brewers needed improved transportation vehicles and routes. In 1859, few networks existed within Colorado and that connected Colorado to other trade nodes. Those that did were suited for beasts of burden or wagons. Over the next decade, more routes were added and Denver brewers had greater access to the products they needed. In the 1870s, railroads greatly decreased the time required to transverse distances.

⁴¹ DDD.

Denver brewers' efforts to procure water, grain, and hops extend beyond financial considerations. Their desires were driven by the industrial world that brewing operated within, the ethnic German character of brewers and drinkers, America's immense industrial transition before and after the Civil War, and the power of railroads to fundamentally change qualitative and quantitative aspects of the brewing industry.

Denver brewers made several spatial choices as they positioned their breweries within the city. They established their businesses closest to resources most desperately needed, and drew ingredients less crucial from an increasing hinterland. Their choices reflect not only the locations of their breweries, but also how they chose to import ingredients. In this order, brewers needed water, grain, and hops. The distance these resources covered to arrive in Denver vary considerably: water was available in the city; grain came from Colorado and the surrounding states; hops moved the furthest distance from the northeast and northwest coasts. One caveat to this trend is adjuncts. Used to flavor and supplement beer, they were cheaply and locally gained.⁴²

Water Requirements

First and foremost, water provides the base for beer and brewers situated themselves near to water sources. No matter the beer type or style, water comprises ninety to ninety-five percent of beer.⁴³ Today, brewing twenty-five gallons of beer requires approximately 100 to 160 gallons

⁴² Yeast is instrumental to fermentation, and it appears to have been bought and sold. However, many breweries would reuse their own yeasts and in any case it certainly was not imported in significant amounts. *Rocky Mountain News*, September 3, 1869.

⁴³ Jay D. Gatrell, David J. Nimeth, and Charles D. Yeager, "Sweetwater, Mountain Springs, and Great Lakes: A Hydro-Geography of Beer Brands," in *The Geography of Beer: Regions, Environment, and Societies*, ed. Mark Patterson and Nancy Hoalst-Pullen (N.Y: Spring, 2014), 92.

of water, though often more in smaller breweries.⁴⁴ Likely, Denver brewers were on the higher side of this usage due to equipment and technology differences. Thus, the approximately 775,000 gallons of beer brewed in 1870 entailed around 4,650,000 gallons of water. The qualities of water such as its impurities, pollutants, or mineral content greatly influence beer's taste and purity.⁴⁵

Finding reliable sources of clean water was essential to brewers. Not only this, but they needed to be close to these sources of water. Transporting water requires tremendous labor and expense, and as such establishing breweries near clean water sources was a crucial consideration of early breweries.⁴⁶ Water posed a special set of spatial constraints. Although water flowed through the city, bringing that water to the breweries was hindered by weight and the lack of infrastructure. While weight and infrastructure is a consideration for all ingredients, the massive amount of water needed meant condensing space between brewery and water source was especially crucial.

Denver's birth at the confluence of the Cherry Creek and South Platte River benefitted brewers. These two bodies of water supplied the denizens with many of their water needs. Like many rivers and streams prior to municipal sewage systems, however, these rivers were heavily polluted. Denver did not develop sewage until the 1880s, even then, like many city projects, the solution lagged behind the need. By 1870, sewage runoff into the South Platte led to a nauseous stench throughout the area.⁴⁷ The impact on brewers was substantial, as a testament, Phillip Zang

⁴⁴ Michael J. Lewis and Charles W. Bamforth, *Essays in Brewing Science*, (MA: Springer, 2007), 143. Smaller breweries have less ability to recapture water, and thus use more per gallon than larger more efficient breweries.

⁴⁵ Gatrell, Nimeth, and. Yeager, "Sweetwater, Mountain Springs, and Great Lakes," 92-4. Lewis and Bamforth, *Essays in Brewing Science*, 143-149.

⁴⁶ Gatrell, Nimeth, and. Yeager, "Sweetwater, Mountain Springs, and Great Lakes," 89-90.

⁴⁷ Dorsett, *The Queen City*, 92

was elected to the Committee on Drains and Sewers in 1874.⁴⁸ Zang's election to an office devoted to clean water suggests the importance of clean water to brewer and consumer as well as the prominence west-side brewers had attained. His business was sufficiently profitable and managed that he could take the time to volunteer, and craft water and sewage policy, an opportunity not available to smaller brewers working on short margins.

As an alternative to the polluted rivers, Denverites drew much of their drinking, cooking, and brewing water from wells.⁴⁹ City planners anxiously attempted to drill wells, though early efforts failed to reach ground water through lack of funding and labor.⁵⁰ Despite this, well digging was a lucrative business and wells became crucial amenities to the city.⁵¹ The Denver water basin was not discovered until 1883 during a search for coal, until which companies dug shallow wells that were quickly polluted, requiring additional digging.⁵² These wells were likely alluvial, meaning they were located along river shores.⁵³ Another effort was to pump water from the rivers directly to taps in 1870, though population and pollution quickly required pumping

⁴⁸ "Committees," *Denver Daily Times*, April 24, 1874. Page 4, column 2

⁴⁹ Dorsett, *The Queen City*, 79. Wells were not immune from contamination, in 1873 people worried about sewage seeping into the ground water, and especially feared contaminated wells spreading typhoid. *Rocky Mountain News Weekly*, October 8, 1873.

⁵⁰ *Denver Directory Data*.

⁵¹ One man looking to sell his house and land in 1873 advertised the quality of his wells. In 1874, a city committee discussed the benefits of sinking artisan wells. *Denver Daily Times*, August 14, 1873. Page 1, column 5. *Denver Daily Times*, December 8, 1874. Page 4, column 2.

⁵² Alvin T. Steinel, *History of Agriculture in Colorado: A Chronological Record of Progress in the Development of General Farming, Livestock Production and Agricultural Education and Investigations, on the Western Border of the Great Plains and in the Mountains of Colorado, 1858-1926*, (Fort Collins: The State Agricultural College, 1926), 246. Leonard and Thomas, *Denver: Mining Camp to Metropolis*, 49-51.

⁵³ Indebted to Northern Water director for this insight.

stations to move upstream.⁵⁴ Most famously, Adolph Coors in 1873 selected Golden as the site for his brewery, fortuitously located upstream from Denver to ensure cleaner water.

Brewers competed with early industries, families, restaurants, and other brewers for access to clean water. The water they vied for was carried through canal and irrigation systems primarily meant to service farmers. Although agriculture struggled in Colorado, it received a boost by way of extensive irrigation projects. Due to eastern Colorado's climate, for reliable crop yields farmers must rely on irrigation rather than rain. Ditches carried water from the Rocky Mountains across the Front Range to farmers and ranchers who in turn ensured the survival of miners and city-dwellers.⁵⁵ Although brewers pulled substantial amounts of water from canals and streams that farmers relied on, there does not seem to have been considerable tension between brewers and farmers in terms of water rights, perhaps due to the interdependency of their industries.

Bringing water to the breweries exacted a considerable price in terms of human labor. Tap water was not available until the late 1880s, and so all water had to be hauled by hand.⁵⁶ Likely, most breweries drew water into barrels which could be carted, carried, or rolled to the brewery. Proximity to high-quality water, therefore, gave certain breweries a competitive advantage in cutting down labor costs and time.

No brewery was directly on Cherry Creek or the Platte River, two places that ostensibly would be ideal for brewers. Instead, breweries were scattered on the edge of Denver's urban core. There is a clear distinction between the breweries in west and east Denver. Phillip Zang's Brewery, John Pemberton's Denver Ale and Beer Brewing Co., and Moritz Sigi's Colorado

⁵⁴ Carl Abbott, Stephen J. Leonard, and Thomas J. Noel, *Colorado: A History of the Centennial State*, 8th ed. (Boulder: University Press of Colorado, 2013), 246.

⁵⁵ *Ibid.*, chapter nine.

⁵⁶ *Ibid.*, 246.

Brewery are located on the west side (Map 1). These breweries lasted years, some decades, and produced the majority of beer in Denver. Situated between Cherry Creek, South Platte River, and the Mill Ditch system. This ditch system was comprised of the Excelsior Mill Co. Ditch and the Merchants Mill Ditch. It was likely west-side brewers' preferred source of water because it was closer and had less sources of contaminants than the two major streams.

Cheyenne Street is an instructive example of the spatial importance of water. This street, in west Denver, was home to Denver Ale & Brewing Co. and Rocky Mountain Brewery, which together produced over 46,000 gallons in 1870, slightly above sixty percent of Denver beer that year.⁵⁷ Although labor and production is discussed in the next chapter, it is important to note a heavy concentration of brewers and laborers lived along Cheyenne St. The crossroads of Cheyenne and Second Ave, which coincided with the railroad and Mill Ditch, had a particularly high concentration of brewers. This intersection allowed for short and easy access to water, as well as grain sent to Denver by train.

Across the creek, smaller breweries run by individual brewers, such as Alex Davidson and Lyman (or Lynn) Parkhurst, had short longevity and low production. For example, in 1870, Lynn produced 2,700 gallons of ale. Though considerable, and gallons ahead of the lowest producer, it amounted to less than four percent of beer brewed that year.

It is clear that proximity to water was crucial to large scale brewing. Carrying water the shortest distance possible meant each trip took less time and effort, allowed for more trips in a given time frame, and in all provided brewers closer to water with a more abundant amount of water. With the exception of City Brewery, small scale breweries averaged 620 meters from their

⁵⁷ One moved from their original location, and thus the map does not represent this.

nearest water source, typically Cherry Creek. Conversely, west-side breweries averaged 223 meters away from the ditch that provided them water (Map 1).

Bushels of Barley

Grains are the second most important part of brewing. Although any glucose-producing substance suffices, such as corn, for brewing, Denver brewers preferred barley. This grain choice reflects German tradition which prioritized barley and heavily influenced mid nineteenth-century American brewing. Packaged by the bushel, barley was a bulky and heavy commodity weighing roughly fifty pounds. Since barley did not grow naturally along the Front Range, Denver imported most of their grain from the East to feed the mines and their growing population. By the mid-1870s, Denver and Colorado barley growers developed expertise to grow crops of a “superior quality for the manufacture of *pure* beer.”⁵⁸

Before the 1870s, Denver brewers attracted all their grains from eastern and western states to supply their breweries. Over time farms grew along the Front Range that supplied brewers, yet the amount of grain needed for everyday use and for brewing dwarfed the amount grown. One aggravating hole in the sources is breweries’ ledger books. It would be immensely useful to know where exactly they bought their grain, but unfortunately, these sources have not survived. Eventually, due to the high consumption of barley, major breweries did negotiate direct deliveries from farmers along the Front Range. To make up the difference, Denver brewers imported grain on railcars in the 1870s. As railroads crisscrossed the nation, Denver brewers employed them to increase their agricultural hinterland and reduce distance’s negative impacts.

⁵⁸ “Beer as a Beverage,” *Rocky Mountain News*, January 11, 1874. Page 4, column 2-3. Their italics.

Malting, through truncated germination, transforms barley into malt for fermentation. To do this, maltsters soak the grain for a few days, which are set aside to germinate. As they begin to sprout, the kernels begin to break down and create sugar-producing enzymes. The maltster then places them in a kiln to dry and roast, ending germination and keeping the sprouting kernels from consuming the enzymes produced. At the end of this process grains have become malt, crucial to fermentation.⁵⁹ Just like brewers, maltsters must be diligent in their water usage.⁶⁰ Occasionally, due to the various prices involved in malting barley, brewers did not always malt their own grain. When barley prices rose to \$1.25 per bushel, many breweries instead opted to buy malt from the East.⁶¹

Malt provides much of the flavor and color, and during fermentation, creates alcohol.⁶² The style and price of beer largely depends on quality, quantity, price, and type of grain used for malting. In an ideal world, brewers would inspect grains to ensure their quality. Denver brewers, however, were at a serious disadvantage in terms of purchasing grains compared to many other American breweries.

Climate and economics are two primary reasons for brewers' difficulties procuring grain. Colorado's arid eastern plains' unpredictable rain and weather patterns caused issues in early efforts to grow grain.⁶³ Miles of canals and ditches transported water from mountain snowmelt to irrigate farms. Wheat was grown around Denver as early as 1859, and barley soon after, but not

⁵⁹ Lewis and Bamforth, *Essays in Brewing Science*, 80-6. A more detailed description of malting and fermenting will be given in chapter two.

⁶⁰ *Ibid.*, 144.

⁶¹ "Beer," *Rocky Mountain News*, July 27, 1873. Page 4, column 2.

⁶² Lewis and Bamforth, *Essays in Brewing Science*, 114. Yeast plays a crucial role here, but brewers did not actively seek out yeast, which is borne by air currents.

⁶³ Duane Smith, *The Birth of Colorado: A Civil War Perspective*, (Norman: University of Oklahoma Press, 1989) 52.

nearly enough quantity to supply the burgeoning city.⁶⁴ 1860 and 1861 saw serious droughts, which returned periodically, unpredictably, and disastrously for farmers.⁶⁵ In 1869, the Boulder Valley produced 24,000 pounds of barley and little over 22,000 pounds of rye.⁶⁶ When compared to Denver Brewing Co.'s needs of two and a half million pounds per year, one can see the massive divide between local supply and demand.⁶⁷

Many available foods in Denver during the Civil War years came from east of the Missouri River.⁶⁸ The distance from farm to Denver resulted in higher prices for the end users. High grain prices tested Denver's development and population growth. In response, Denver developed infrastructure and connections whereby they drew raw materials—especially foodstuffs—in, processed and produced goods from them, and then forwarded the finished product onto the mountains.⁶⁹ In return, gold flowed from the mountains into Denver, bolstering its predominance along the Front Range. Functionally, this system favored miners who could offer gold for grain. Mining was the primary industry in the 1860s, and feeding miners took precedence over Denverites.

Achieving agricultural self-sufficiency was the professed dream of city leaders, but proved unrealizable until the mid-1860s. Even then weather consistently plagued farmers.⁷⁰ One of the greatest impetuses for self-sufficiency, and earliest threat to Denver's food supply, was the Civil War. With the exception of minor skirmishes Colorado's white population experienced

⁶⁴ Steinel, *History of Agriculture in Colorado*, 447-8.

⁶⁵ Elliot West, *The Contested Plains: Indians, Goldseekers, & the Rush to Colorado*, (Lawrence: University Press of Kansas, 1998), 253.

⁶⁶ "Among the Farmers," *Rocky Mountain News*, January 19, 1869. Page 1, column 2-3.

⁶⁷ "Barley and Brewing," *Rocky Mountain News*, April 28, 1874. Page 4, column 1.

⁶⁸ Dorsett, *The Queen City*, 10.

⁶⁹ For example, see Leonard, "Denver's Foreign Born Immigrants," 3; Dorsett, *The Queen City*, 10; and West, *The Contested Plains*, 112.

⁷⁰ Dorsett, *The Queen City*, 10; West, *The Contested Plains* 226. Smith, *The Birth of Colorado*, 50-2.

little internecine fighting but felt indirect effects. The war effort redirected many of the resources east to the theatres of war that before been sent west to Denver and the mining camps. Commissaries needed grain, and soldiers wanted whiskey, which decreased grain access for nascent Denver breweries.

Duane Smith suggested that the Civil War largely shaped Colorado's development. The 1859 Gold Rush, the establishment of Denver, and the outbreak of war occurred in a short span of time. Denver's reliance on imports from the East and ensuing grain shortages encouraged Coloradoans to focus on growing their own food. Food that Denverites depended upon primarily came from Kansas in wagon trains susceptible to Indian attacks, weather, and Confederate raiders.⁷¹ Troops were deployed to protect essential wagon trains traveling across the Great Plains.⁷² This plan worked, and Denver continued to attract resources from their eastern hinterlands and provide miners with food. Many city leaders knew they could not always rely on soldiers to protect their supply lines, and pushed for a more sustainable agricultural plan.

Soldiers of the First Colorado Regiment stationed at Ft. Lyon occupied themselves with drinking whiskey and beer after a few forays of Texans into Colorado.⁷³ Ovando Hollister's personal account of the First Colorado Regiment attests to the hearty appetites and thirst of bored soldiers: "Last night the boys broke into the sutler's cellar and gobbled a lot of whiskey, wine, canned fruit, oysters, etc."⁷⁴ Hollister and his comrades, although supplied by the state and federal government, clearly wanted more food and alcohols than they were receiving. A few Colorado breweries attempted to satisfy these soldiers on the southeastern border, and profited

⁷¹ Smith, *Birth of Colorado*, 52-4.

⁷² *Ibid.*, 148.

⁷³ *Ibid.*, 22, 112.

⁷⁴ Ovando Hollister *Boldly They Rode: A History of the First Colorado Regiment of Volunteers* (Lakewood: Golden Press Publishers, 1949), 55.

from their proximity. However, Denver was too far away and brewers lacked efficient transportation methods to reach these soldiers, and therefore the overall impact on the troops was to drain resources rather than fill coffers.

It appears, from a lack of advertisements and other sources, that San Luis Valley grain was not advertised to Denver consumers. Hispanic settlers moved north from Taos and Santa Fe into this valley in the 1850s. These settlers were pastoral-agriculturalists, and built their towns along familial lines. Certainly they were not completely isolated from hungry Denverites, and likely wanted to sell their grain there despite the daunting mountains between them.⁷⁵ Railroads connecting Denver to the valley were not built until 1878, and all grain would have had to be carted to Denver. As will be explored later, hops came from further afield and across harsher terrain. Racial and religious difference between Hispanics and Anglo-Americans offers another explanation for the lack of San Luis grains. Biases and racial differences ideologically isolated Denver from connecting to the rich farmlands in the valley.⁷⁶

In addition to the Civil War, other restrictions kept grain from flowing west. Before grain even was sent west, a huge amount of it was distilled into whiskey. For many merchants, sending whiskey instead of wheat provided a much more lucrative, and less risky, endeavor. A bottle of whiskey was cheap to make, expensive to buy, compact, easily transported, and did not spoil.

⁷⁵ San Luis farmers had years of agricultural experience in Colorado, and by the 1860s grew large quantities of wheat for the states' growing population. Virginia McConnell Simons, *The San Luis Valley: Land of the Six-Armed Cross* 2nd ed. (Niwot: University Press of Colorado, 1999), 133.

⁷⁶ Grain reports from the Big Thompson valley are noted, which was closer, separated by easy terrain, and composed of white settlers. *Rocky Mountain News*, January 28, 1873. Page 2, column 1. See also, Maxine Benson, Duane Smith, and Carl Ubbelohde, *A Colorado History*, 8th ed. (Boulder: Pruett Publishing, 2001), 187-8. Abbott, Leonard, and Noel, *Colorado: A History of the Centennial State*, 35-37. For more on the racial West, see Jason Pierce, *Making the White Man's West: Whiteness and the Creation of the American West*, (Boulder: University Press of Colorado, 2016).

The same is not true for bulky bushels of barley. For example, one wagon train comprised of eighty wagons transporting some sixteen hundred barrels of whiskey.⁷⁷ Also, Denver did not receive all grain entering Colorado, some went to other Front Range towns, and a significant portion went south to Taos and Santa Fe distilleries.⁷⁸ Further, Denver grain merchants may have preferred to stock wheat rather than barley or rye for households and bakers, again shortening the supply available to brewers.

Despite the numerous spatial, political, and economic hindrances, Denverites established stable barley supply chains in the later 1860s and early 1870s. Local grain grown in the nearby Colorado plains arrived by wagon or cart. Brewers and maltsters may have contracted with individual farmers in order to ensure they had sufficient grain. Zang in a discussion the role brewing played in Denver's development recalled barley seeds brewers gave to farmers in the spring in return for barley in the fall.⁷⁹ In 1874, the Denver Brewing Co. appealed to Colorado farmers to grow barley, offering to establish contracts for barley.⁸⁰ By the 1880s, contracting between farmers and brewers became a common business practice. Kansas and eastern grain also came on wagon trains. Millions of pounds of goods crossed the plains in the 1860s, increasingly headed towards Denver.⁸¹ Slow and expensive, in the late 1860s Denver planners worked to construct a railroad linking themselves to Kansas grain and markets across the east.⁸² By 1871 Denver had built itself into the transnational railroad system. This is a watershed moment for Denver breweries, and it is no surprise that many open in 1871 and 1872.

⁷⁷ West, *The Contested Plains* 219.

⁷⁸ Unrau, *Indians, Alcohol, and the roads to Taos and Santa Fe*. 27-8, 86. 129.

⁷⁹ McLeod, *Ghost Breweries of Colorado*, 74-6.

⁸⁰ "Barley and Brewing," *Rocky Mountain News*, April 28, 1874. Page 4, column 1.

⁸¹ West, *The Contested Plains* 216.

⁸² Benson, Smith, and Ubbelohde, *A Colorado History*, 72.

The railroads built connections across the U.S., especially the West. One, the Union Pacific Railroad, Denverites believed would run through Denver. Instead, it planned to shift north to Cheyenne. The Kansas Pacific Railroad, another company building a rail west, was in arrears. Rather than gamble on Denver's success, their westward rail would shift southwest to avoid much of the Rockies. With one rail heading north and another falling south, Denver faced the possibility of being blocked out of the rail system. This would effectively spell the end of Denver's growth as people and business would follow the railroads.

To preclude this and secure the future prosperity of their city, leaders and banks raised \$2 million to bail out Kansas Pacific to ensure they reached Denver, and to lay rail that connected Denver to the Union Pacific in Cheyenne. Though incredibly expensive, this measure protected Denver's survival.⁸³ The year before, 1870, Denver built a streetcar line on Ferry and Second that connected directly to the future railroad depot. One year later, the Rocky Mountain Brewery opened a block west on Second (Map 1).

Railroads saved, reinvigorated, and propelled Denver forward. They connected the city to a national network, and guaranteed its prominence along the Front Range as a supply and distribution center.⁸⁴ Like many towns-turned-cities in America, the railroad utterly transformed Denver. Compared to wagons, railroads moved a higher quantity of goods quicker. The impact for brewers was threefold. First, this meant grain and hops arrived in better condition, and in greater quantities.⁸⁵ Less spoilage en route meant a greater amount of ingredients reached Denver in good condition.

⁸³ Dorsett, *The Queen City*, 21-5.

⁸⁴ Benson, Smith, and Ubbelohde, *A Colorado History*, 115-22, 199.

⁸⁵ A similar process occurred in Chicago earlier, see Cronon *Nature's Metropolis*, 111.

Second, trains carried transients who provided Denver with a surging labor force. Denver's population had stagnated during the Civil War as young men volunteered—or were drafted—into the war. Railroads eased the journey west, resulting in a shift in migration motivations. Prior, young men came to seek their fortunes in the gold fields. Now, railroads carried people desirous to escape the polluted cities and experience the salubrious west.⁸⁶ Consequently, the increase in population meant a rise in consumers for brewers.⁸⁷

Third, Denver was connected to markets much further afield, and imported grain from California as well as Kansas.⁸⁸ Brewers imported a considerable quantity of grain. One of the largest brewers, Denver Brewing Co. alone purchased \$40,000 worth of grain from Utah and California in 1874.⁸⁹ Beyond connecting Denver to more diverse grain sources, this also situated Denver in a transcontinental network of agriculture and manufacturing. Weather or financial conditions in states to the east were less likely to affect states on the other side of the Rocky Mountains. Drawing grain from the Midwest and Pacific Coast meant safer yearly grain supplies.

Over time, Denver developed an agricultural hinterland that provided brewers with many of their barley needs. In 1869, Denver Ale Brewing Company advertised it was brewing with “our Colorado barley... with the intention of making it [the brewery] a Colorado institution.”⁹⁰ State crop yield estimates for 1869 to 1871 valued \$3,500,000 with an expectation of an additional million in 1872.⁹¹ Again, railroads are part of the transformation of Denver. In 1871,

⁸⁶ James A. Ward *Railroads and the Character of America, 1820-1887*. (Knoxville: University of Tennessee Press, 1986), 63-5. See also Pierce, *Making the White Man's West*, chapter five.

⁸⁷ Thomas J. Noel, *The City and the Saloon: Denver, 1858-1916*, (Niwot: University Press of Colorado, 1996), 29-32.

⁸⁸ Steinel *History of Agriculture in Colorado*, 83. This work notes in 1874, eighty cars of barley came from California, amounting to \$24,000 dollars of produce.

⁸⁹ “Barley and Brewing,” *Rocky Mountain News*, April 28, 1874. Page 4, column 1.

⁹⁰ *Rocky Mountain News*, August 14, 1869. Page 4, column 3.

⁹¹ *Denver Directory, 1873*. 25.

they carried people to the Front Range to farming colonies created out of railroad land grants.⁹² Colorado barley yields jumped from thirty-five thousand bushels in 1870 to over one hundred thousand in 1880.⁹³ Buying grain produced within the state likely reduced prices. Denver brewers probably still acquired barley from outside the state since Colorado's production remained relatively low. For example, Kansas produced almost one hundred thousand bushels of barley in 1870 and Nebraska almost twice that.⁹⁴

After grain arrived in Denver, it is difficult to know where brewers and maltsters acquired grain. Two possibilities exist, based on rail and wagon. Denver depots were along K and Wazee; two blocks from Alex Davidson's small brewery but nine from Rocky Mountain Brewery or Colorado Brewery. East side brewers traded distance from water to proximity to barley. Colorado Brewing Co., Denver Ale Brewing Co., and the Rocky Mountain Brewery, located in West Denver, employed drivers who could pick up and transport grain to the breweries (Map 1). Larger breweries used capital to negate the adverse impact of distance.

Wagons provided the second option. Ideally, brewers would like wagon-borne grain from local or eastern farms to go directly to them. Wagoners brought barley and wheat to grain and feed stores, perhaps the only option for smaller brewers. Indeed, smaller brewers were closely clustered around these stores (Map 2). Condensing space for barley required significant capital on an individual and communal level. Large brewers had the means to hire wagon teams to carry more grain from depots quicker to their breweries. At the same time, no brewer could have built the railroads alone, and they all benefited from the city's efforts to connect to the railroad system.

⁹² Steinel, *History of Agriculture in Colorado*, 393-4.

⁹³ U.S. Census Bureau, *Population of the United States by States and Territories, 1880*, 13-15.

⁹⁴ U.S. Department of the Interior, *Statistics of Agriculture, 1890*, 95, 103.

Railroads facilitated importing grain for brewers. They condensed distance by speeding the rate of travel between farm and brewery. Further, Coloradoans promoted, encouraged, and developed farming along the Front Range. These farms shortened the distance grain had to travel. Denver brewers benefitted from national railroad building projects and increases in state agriculture. The former had a dual benefit of connecting Denver to hop producing regions of the country, which were even further afield than the barley hinterland.

Hop Cones from the Coasts

Fermenting beer requires barley and water, and in Denver it was crucial for breweries to situate themselves to readily access these ingredients. These two ingredients are chemically necessary to brewing. Quality mattered, but beyond this they had little value besides facilitating brewing. The rest of the chapter now turns to non-essential ingredients that represent cultural, economic, and flavor choices brewers made.⁹⁵ Primary among these are hops, purchased from the northeast and northwest coasts. Importing hops in the necessary amount was impossible without railroads. Railroads condensed space between hop fields and breweries, an especially important aspect for hops that traveled several states to Denver.

Hops, more than any other ingredient, illustrate the vast networks that connected Denver to markets and agricultural hinterlands to the east and west. For Denver brewers to brew at the scale they were, they needed to both import a massive amount of hops and be assured of their quality. Wagons, while helpful for barley, were unable to transport the volume of hops needed and thus railroads were an essential part of hop imports. Between Denver brewers and hop fields

⁹⁵ That is, chemically non-essential. Hops are not necessary to have beer, yet, their traditional importance, preservative qualities, and the aroma and flavor profiles made them financially essential.

laid the greatest distance of all brewing materials or ingredients. Hops were a crucial ethnic ingredient and their preferred growing climate posed the most substantial spatial challenge to Denver brewers.

Hops are an important part of Germanic brewing. Archeologist and beer historian Max Nelson posits the first usage of hops in brewing in ninth-century northern France. Over the next century, hopped beer spread quickly across northern Europe, especially to Germany aided by the enjoyable flavor it bestowed beer, its preservative ability, and its nativity to Germany. Hopping beer gained traction in Germany, where it became a crucial ingredient.⁹⁶ In mid-fifteenth century Munich, the duke proclaimed the *Reinheitsgot* that established beer must include, and only include, barley, hops, water, and yeast.⁹⁷ Between the first introduction of hops to German brewing and the *Reinheitsgot* are centuries of integrating hops into beer and, by extension, into the core foodways of Germans. By the nineteenth century, the *Reinheitsgot* was several hundred years old and was foundational to German brewing practices. For beer to be truly German, it must include hops.

Hops, however, did not grow easily across the nation and the disconnect between their high demand for brewing and limited production made them a cash crop. Like many cash crops in American history, growing, cultivating, processing, and transporting hops was a complicated system. A short description of hop growing will help illustrate the difficulties inherent in growing hops and explain the multiple distance challenges. Because of shared information and techniques, the process was similar on both coasts. Not only does climate need to be conducive

⁹⁶ Max Nelson, *The Barbarians Beverage: A History of Beer in Ancient Europe*, (London: Routledge, 2005), 97-104

⁹⁷ Richard Unger. *Beer in the Middle Ages and the Renaissance*, (Philadelphia: University of Pennsylvania Press, 2004), 109. This law is still in effect in Bavaria, and many brewers proudly claim their adherence to the German purity law.

to hops, farmers must also manipulate their fields to facilitate hops growing. First, farmers needed to prepare their fields and plant hops a year before they could expect a crop. Preparation included ensuring a one to one hundred male to female hop ratio, applying heavy manure, and building runoff trenches. Next, they planted poles twelve to sixteen feet high for hop vines to climb. These lasted at best five years, which required constant attention and resupplying. As they grew, farmers needed to train the vines to grow clockwise otherwise the shoots would not thrive.⁹⁸

Harvesting and preparing hops for sale was similarly tedious work. Quality control was an early component of the hop industry, but this proved difficult over such a finicky crop and across regions. In response, American brewers ideally visited fields prior to harvest to inspect crops they wanted to buy.⁹⁹ It is unlikely that Denver brewers had this opportunity. A trip to hop-producing regions from Denver would mean long stretches away from the brewery. This was difficult for large brewers even after they hired other laborers and was impossible for the small, solo operations in east Denver. John Good, proprietor of the Rocky Mountain Brewery, is the only brewer that evidence exists of direct involvement in the hop trade exists. Instead, they were at the mercy of proficient pickers, kilners, and balers.

Hop picking took place in the fall with alacrity between the moment the farmer deemed the crop ripe and the first frost. Speed and diligence marked the whole process. Pickers quickly selected as many ripe cones as possible, taking care not to crush the cone. Crushed cones meant they would lose their resins and impart fewer flavors to beer. Fears of crushing were a constant

⁹⁸ Michael Tomlan, *Tinged with Gold: Hop Culture in the United States*, (Athens, GA: University of Georgia Press, 1992), 45-54. Peter Kopp, *Hoptopia: A World of Agriculture and Beer in Oregon's Willamette Valley*, (Oakland: University of California Press, 2016), 12-15. This, perhaps more than anything, highlights the tedium and painstaking detail required to grow hops.

⁹⁹ Tomlan, *Tinged With Gold*, 18, 89-90.

worry from growing to the final sale. Farmers recruited a vast seasonal labor force from nearby cities and towns, which had deep roots in the English tradition.¹⁰⁰ Families came to labor together as a reprieve from cramped, polluted, urban life. The same day they were picked, hops were dried either in the sun or a kiln. Kilns dried quicker and gave kilners greater control than relying on the sun, though at the risk of burned or scorched hops, which reduced their value to brewers. Throughout this process, the hops were treated carefully not to break the cone and lose the important flavoring elements.¹⁰¹

To prepare for transportation, workers baled hops into burlap bags. Various methods existed for this purpose: human weight, turn screws, or presses. Though the latter two options more efficiently packed hops they posed a tradeoff: more hops meant a higher risk of crushing and ruining some. The ideal bale weighed between 170 and 180 pounds. After baling, hops were ready to ship across the nation.¹⁰² New York hop farmers had decades of experience in this system, which gave them a competitive advantage over other states.

Rocky Mountain Brewery's first lager in 1859 was noted as "innocent of hops" a situation reflecting the lack of trade with hop-producing regions.¹⁰³ After this was remedied, hops featured prominently in Denver beers. Hoppiness and bitterness of Denver beer is difficult to discern. Desired taste, beer type, and their finances influenced hop use. Brewers could reuse hops in serial brews, though the hops would lose their potency and freshness. The 1870 Manufacturing Census noted how many hops each brewer used. The highest user by weight was John Good—proprietor of Rocky Mountain Brewing Co.—who used eighteen hundred pounds.

¹⁰⁰ Kopp, *Hoptopia*, 54-57.

¹⁰¹ Tomlan, *Tinged with Gold*, 62-70. There was an ongoing debate if the hops should be turned while kilning. This would ensure a more even consistency, but at the risk of crushing the cones.

¹⁰² Tomlan, *Tinged With Gold*, 73-79.

¹⁰³ *Rocky Mountain News*, July 12, 1876. Page 2.

Conversely, L. Stumpf used only 225 pounds of hops.¹⁰⁴ Yet, numbers alone are misleading. All of the brewers had an almost 1.5:1 ratio for hops to barley, meaning they added over a pound of hops for every bushel of barley to their brew.¹⁰⁵

The small variation in hop use stems from a city-wide Germanic brewing heritage, transplanted to Denver by consumers and producers. Germans in Denver wanted hopped beer. It was familiar to them, and perhaps reminded them of their far-away homes. If consumers did not appreciate hopped beer, brewers would have limited their use of an expensive and extraneous ingredient. The implication is that all Denver brewers needed a great deal of hops. This, in turn, led to a high demand for hops in Denver, a place considerably different than the environments favored by hops.

Purchases from breweries across the country detracted from the available supply for Denver brewers. They quickly remedied the hop deficiency by improving their commercial networks and physical infrastructure to hop producing regions. Pemberton's hops expenditures in 1870 amounted to \$650, a little over \$6 per pound.¹⁰⁶ Hops' price is tied to their preferred climate. To grow, they require deep rich soils, temperate climates, plenty of spring rain, and dry summers.¹⁰⁷ As such, they grow well in northern Europe and New England. In fact, there is a variety of hops native to New England, but early American colonists instead chose to import hops from Europe.¹⁰⁸ Hop growing remained largely confined to New England until the 1870s when production exploded in the Pacific Northwest.¹⁰⁹ In 1877 New York, hops ranging from

¹⁰⁴ *Denver Manufacturing Census, 1870*. 9.

¹⁰⁵ There is some variation; John Good had the highest ratio of 1.8 pounds of hops per bushel of barley. All were within a range 1.5 and 1.8 pounds to bushels.

¹⁰⁶ *Denver Manufacturing Census, 1870*. 9.

¹⁰⁷ Kopp, *Hoptopia*, 6.

¹⁰⁸ Kopp, *Hoptopia*, 18. Over time this will change, but only in the nineteenth century.

¹⁰⁹ Kopp, *Hoptopia*, 26, 37.

“choice to fancy” cost ten cents per twelve pounds. “Nominal” quality hops from California and Oregon were eight cents per twelve pounds.¹¹⁰

Unfortunately for Colorado brewers, the climate that was so enjoyed by early tourists and settlers was not favorable to hop growing, though not for lack of trying. In 1869, Central City’s *Daily Register Call* ran a column suggesting local farmers try growing hops.¹¹¹ The columnist complained of the high price for importing hops, and argued that Colorado could retain money leaving the state for hops if farmers adjusted their production.¹¹² This would also benefit brewers’ quality by vastly reducing the distance between hops and their breweries. Despite a report from Boulder country, which claimed hops grew wild there, the expertise for hop cultivation and processing did not exist in Colorado.¹¹³ Given the high startup costs and the soil and water requirements not easily met in Colorado, it is easy to see why farmers stuck to more familiar crops.

Physical climate alone did not account for lack of hops. Religious and moral climate also weighed heavily on farmers. An article from the *Rocky Mountain News* explained Greeley’s opposition to hop—and barley—growing because “these staples are the principal ingredients of beer.”¹¹⁴ Although the Temperance Movement took several years to gain traction through the state, Greeley from its inception was a sober, religious town.¹¹⁵ Not until 1890 did hops appear on the state census. That year, almost twenty thousand pounds grown on only twenty acres

¹¹⁰ *The Western Brewer: And Journal of the Barley, Malt, and Hop Trades* 2, no. 8 (August 1877): 292, <https://americanbreweriana.org/WBJ/WBJ-1877-8/index.html>.

¹¹¹ *Daily Register Call*, August 25, 1869. Page 4, column 3.

¹¹² *Ibid.*

¹¹³ *Rocky Mountain News*, May 30, 1868. Page 4, column 2.

¹¹⁴ *Rocky Mountain News*, September 3, 1872. Page 4, column 3. Here, agriculture and the growing Temperance movement in Colorado collide

¹¹⁵ Steinel, *History of Agriculture in Colorado* 386. Benson, Smith, and Ubbelohde, *A Colorado History*, 126-8.

attesting to the growth of the Colorado brewing industry.¹¹⁶ Also, this exemplifies the consolidation of brewing-related industries; one farmer, C.J. Marsh, was the sole owner of this land.¹¹⁷

Hops were a major cash crop, and potential profits from growing hops encouraged neighboring states to the east to attempt production.¹¹⁸ Utah is the only mountain west state that grew hops but only reached a high-water mark of 550 pounds in 1870.¹¹⁹ Kansas, as early as 1860, grew one hundred pounds of hops, rising to nine hundred in 1870, before falling to five hundred and then zero in 1880 and 90 respectively. Missouri boasted twenty thousand pounds, and Wisconsin a hefty four million pounds in 1870.¹²⁰ These latter two states produced massive quantities of hops, but it must be kept in mind that they were home to large industrial breweries, such as Pabst and Anheuser-Busch, which even today remain industrial giants.¹²¹ They, and other breweries across the Midwest, would have consumed a significant portion of the hop yields, constricting the harvest before it reached Denver brewers.¹²² Competition for hops did not end once they reached Colorado. Denver brewers competed with ones in Pueblo, Georgetown, and Black Hawk for hops. Similar to grain, they may have also competed with bakers and families, such as one Boulder article that listed a potato bread recipe with the addition of hops.¹²³

¹¹⁶ U.S. Department of the Interior, *Statistics of Agriculture, 1890*, 107.

¹¹⁷ *Denver Daily Times*, August 26, 1875. Page 4, column 1.

¹¹⁸ Tomlan, *Tinged With Gold*, chapter one.

¹¹⁹ U.S. Department of the Interior, *Statistics of Agriculture, 1890*, 107, 115.

¹²⁰ U.S. Census Bureau, *Population of the United States by States and Territories, 1880*, 15.

¹²¹ Mittleman, *Brewing Battles*, 64-5.

¹²² It is not farfetched to think that a few major breweries could use up to four million hops when we consider that one of the largest breweries in Denver, the Rocky Mountain brewery, used four thousand pounds of hops to brew around 31,000 gallons. By way of comparison, in 1877 Yuengling and Anheuser-Busch produced almost 2,000,000 and 1,400,000 gallons respectively. Mittleman, *Brewing Battles*, 64-5.

¹²³ "Raw Potato Yeast," *Boulder County News*, April 5, 1870. Page 1, column 6.

Since regional production was impossible, Denver brewers had to extend to the coasts for their hops. As with grain, wagons or railcars were the primary means of transportation. John Good, for example, arrived in Denver in 1859 with the first wagon full of hops, which he quickly sold to fund the Rocky Mountain Brewery.¹²⁴ This not only illustrates the diverse means hops came to Denver, but also their value. According to this story, one wagon of hops could buy the necessary components of a brewery. Good embarked on several trips across the plains to purchase hops.¹²⁵ This tenacity later served his brewery well, especially as it grew and needed an increasing amount of hops.

The transcontinental hop trade resembled grain in two crucial ways: transportation and access. Rail and wagon were the primary methods hops came to Denver. Unlike grain, however, Denver was situated directly between both hop-growing centers. Distance severely limited access. Like grain, many interests bought hops before they could reach Denver. Unlike grain, a lower quality hop shipment was far more detrimental than poor grain. Crushed, burnt, or otherwise ruined hops significantly impacted the end product.¹²⁶

Consistently high hop quality was crucial to a brewery's success. Whether hops came from California or New York seemed to be a point of some contention. One writer claimed "California hops are unequaled by those raised in any other part of the world."¹²⁷ By this point, hops had been cultivated in the Pacific Northwest for only thirty years, and California for less than that. The rail line Denver had fought so hard for connected them to hop regions. This privileged Denver over other cities' breweries. Ostensibly, this meant Denver had first pick of the best hops in Colorado. Pueblo Brewery had a different idea: "Pueblo beer is made of the best

¹²⁴ Coel, Barker, and Gilleland, *The Tivoli*, 7.

¹²⁵ *Ibid.*, 7-8.

¹²⁶ Especially when we consider the high amount of hops being used in brewing.

¹²⁷ *Boulder County News*, April 20, 1870. Page 1, column 3.

hops and malt, while Denver beer is said to be made of glycerin and molasses.”¹²⁸ After purchase, brewers selected hops they wanted to add to their beer. The rest, lower quality or somehow damaged from the process listed above, were offered for sale.¹²⁹

Finally, once the shipment reached Denver, it is difficult to discern where brewers bought their hops, but it is likely they turned to grocery stores and train depots. Colorado Brewing Co., Denver Ale Brewing Co., and the Rocky Mountain Brewery would again have an advantage by employing their own drivers to transport hops. Denver’s position as supply depot, and its integration into the transcontinental railroad system, privileged its brewers over ones from other Colorado towns.

The 1870 census listed, after barley and hops, a category of “all other.” What else found its way into beer during this time? Beer adulterants and adjuncts have a complicated history. On the one hand, they are valued in beer for flavoring; on the other, some view them as corrupting beer styles and perhaps posing a risk to consumers. The line between flavoring additive and hazardous impurity is hardly firm. Time and place largely inform whether an additive enhances or corrupts the beer.¹³⁰ Often adjuncts enhanced flavor, disguised the taste of weak beer, and increased the alcohol content.

Spices or herbs flavored beer without improving the alcohol content. Sugar resulted in a stronger, sweeter beer while corn, molasses, and other cheaper grains just cheaply boosted the

¹²⁸ *Colorado Daily Chieftain*, March 22, 1873. Page 4, column 1.

¹²⁹ “Hops! Hops!” *Rocky Mountain News*, April 18, 1871. Page 1, column 5. This is recorded for Denver Ale Brewing Co. The opportunity to be choosy may have only been available for the large breweries.

¹³⁰ Ian Hornsey, *A History of Beer and Brewing*, (Cambridge, UK: Royal Society of Chemistry, 2003), 417-421. He notes that hops, now an indispensable component of beer, at one time was considered an adulterant.

alcohol content.¹³¹ Likely, most brewers in Denver used some sort of adjunct to lower their costs. These are fairly innocuous, and brewers used them to make their beer distinguishable. Or to hide some brews that may have reused ingredients making a less flavorful brew. This was part and parcel of widespread adulteration of alcohol, tobacco, foodstuffs, gold, and all other manner of Colorado goods.¹³² These ingredients would have procured locally from gardens and farmers. Any adjunct that contained glucose boosted the alcohol content during fermentation at little cost to the brewer.

Denver brewers were tied to municipal, local, regional, and national markets in their effort to purchase the necessary ingredients for brewing. By weight, they were closest to the heaviest—water—and furthest from the lightest—hops. Breweries are a useful lens to understand the way by which railroads connected communities across the nation, as well as understanding the various agricultural regions. The work required to coordinate and acquire ingredients was only the first step for brewers. Next, they needed to attract labor, equipment, and actually produce their beer, which is where the next chapter turns.

¹³¹ Hornsey, *A History of Beer and Brewing*, 416-418, 502.

¹³² The plethora of advertisements professing pure, unadulterated goods suggests false measures, cutting, and other methods were used.

Chapter Two

Beer Factories: Ascendance of West Side Brewers

Gallons of water, bushels of grain, and pounds of hops entail only the ingredients of brewing. To create beer, they must be sent through brewing equipment purchased with capital, hauled by laborers, and overseen by craftsmen. Within tall brick buildings, barrels of water were heaved to the rafters by pulleys. Tipped over, the water rushed through a matrix of copper piping through several stages of brewing. Over the course of several hours, workers scurried dumping ingredients into boiling water, feeding roaring fires, stirring heavy mash, and feeling themselves boil within the sweltering structure. Although slowly industrializing, labor in a brewery was still physical, hot, and potentially dangerous.

By 1876 only five breweries remained, all, with the exception of City Brewery, on the west side of town. In the 1870s, Denver breweries embraced industrialization differently, determined by their capital, production, and prospects of long-term business. By virtue of their increased capital acquired through enlarged buildings, hiring skilled and unskilled laborers, and large equipment purchases, west-side breweries were more capable of incorporating machinery and converting their businesses into proto factories. Even still, they did not adjust and improve their internal equipment and personnel uniformly. Rather, each brewery made conscious, and often expensive, choices about how to move their company forward. East-side breweries were blocked by a lack of capital to expand and mechanize their operations. Indeed, one result of the adaptations of the west side was to force out many smaller breweries that could not produce as cheaply.

This chapter examines brewing—malting, brewing, fermenting, lagering—labor and equipment. Where the first chapter looked at Denver’s national commercial relationships, this chapter narrows into the physical space of brewing. After the railroads plugged Denver into a national trade system in 1871, Denver breweries boosted their employment and size. West-side breweries attained a factory-level production and management system with routinized labor that produced much larger batches of beer than previously possible.¹³³ This required sufficient space and equipment to brew, skilled and unskilled labor to move beer through the brewing process, and capital to contend with other breweries for workers and equipment. All these issues contained spatial elements and obstacles. Brewers’ efforts to surmount these spatial challenges as they moved from craftwork to industrial labor combined and lead to a bifurcation of brewers. Large brewers industrialized while small brewers, without the capital necessary, wilted and opened with less frequency.

Beer Factories

Malting, brewing, fermenting, and lagering are distinct tasks with their own requisite equipment, techniques, and process. Breweries relied upon various labor skill sets, and Denver had an array of skilled and unskilled laborers. Brewing, as craft and industry, exemplifies how labor specialization and hierarchies formed across America during the Industrial Revolution. Large breweries increasingly resembled factories, though they never removed skilled—and thus

¹³³ For example, Denver Ale Brewing Co.’s production in 1870 was approximately \$16,000 with \$13,000 in capitol. In 1880, they had \$60,000 in production and \$125,000 in capitol. DDD.

expensive—labor entirely. Competition over, and access to, equipment and skilled labor contributed to the divide between large- and small-scale breweries.¹³⁴

Two important aspects of Denver brewing labor stand out. First, west side brewers employed extra labor, meaning workers besides the main brewer. East side brewers were single-man shops with the notable exception of the Summer brothers—Leonard brewed while John built barrels. Even still, their brewery lasted only a year before moving to Georgetown. Second, laborers on the Front Range were transient and often worked less than a year in a single business or city. In addition to the spatial east-west divide among breweries—smaller breweries on the east and large, established ones in the west—there is a temporal division between the 1860s and 1870s. The first decade all breweries struggled to establish themselves and attract enough resources and customers. The latter decade west side breweries had built their businesses and networks and began expanding their operations.

The nineteenth century saw an explosion of technological innovation. Industrialization made possible new approaches to malting and brewing. Newer and larger malt rollers, cooling coils, vats, mash tubs, and other innovations allowed brewers to produce at a previously unimaginable scale. Additionally, new machines shortened the time needed for malting, reducing the workday while increasing productivity. Industrialization modernized the workday and mechanized brewing. In general, American brewers were more receptive to these changes,

¹³⁴ A note on terminology: here laborers are unskilled employees of breweries, meaning they do not have a designated job or role. Workers are all people involved in operating a brewery. Skilled laborers are brewers and maltsters.

though this was far from ubiquitous. Generally, though not completely, German brewers preferred time-honored methods of malting and brewing.¹³⁵

Denver is an interesting example of the hybridization and transition industrialization wrought on traditional craft industries. Brewers were German, though many had worked in American breweries prior to their arrival in Denver.¹³⁶ Conservative in adjusting their time-honored craft, many saw the benefits of machines, and breweries in Denver represented a mix of old and new. This was a function of brewers' training and experience as much as the equipment available. They incorporated new equipment, though not as fully as industrial brewers in St. Louis or Milwaukee. Denver brewers in the 1860s and 1870s stood at the bridge between traditionalism and modernization.

Coal, the fuel of the Industrial Revolution, transformed the brewing industry. Chapter One illustrated how coal-fired trains brought ingredients and customers from across America to Denver. Coal also powered the foundries that forged larger kettles, tubs, pipework, and provided heat for brewing. Thomas Andrews, in his study of the Ludlow Massacre, explains, "Coloradans burned coal to break the bounds that had long constrained natural ecologies and human economies in the region" and further that "Every ton of coal provided clear economic gain."¹³⁷ Proximity to the coalfields in southern Colorado, and rail lines that connected the fields to Denver, meant Denver industries had relatively easy access to this pivotal resource.

¹³⁵ *One Hundred Years of Brewing: A Complete History of the Progress made in the Art, Science and Industry of Brewing in the World, Particularly during the Nineteenth Century, A Supplement to The Western Brewer*, (Chicago: H.S. Rich & Co. 1903), 77-83.

¹³⁶ A quick glance over some names—Adolphus Leininger, Frederick Boun, George Guder, and George Moehrlin—suggest their Germanic roots. Adolph Coors worked in several breweries as he made his way to Golden, and Moritz Sigi hired brewers from eastern (presumably American) breweries. Dan Baum, *Citizen Coors: An American Dynasty*, (New York, William Morrow, 2000), 6. *Rocky Mountain News*, December 17, 1870. Page 4, column 5.

¹³⁷ Andrews, *Killing for Coal*, 83.

Brewers nationwide took advantage of the power of coal. Architectural historian Susan Appel explored coal's effect on brewing by examining changes in brew house structure. She noted in the early nineteenth century most breweries were smaller two-story structures with hand machines and gravity-powered plumbing. After the Civil War, steam powered breweries, which had increased considerably in size and production.¹³⁸ Beer, as with many industrially mass-produced goods, responds to economies of scale.

Breweries' size limited the capacity of fermenters, kettles, and malt kilns which in turn restricted beer production.¹³⁹ These buildings reflected the brewing industry in representing the meeting point of agriculture and industry. They were more ornamental than pure factories, though their size and production were similar. Often they resembled German architecture, understandable given the German nature of their beer, employees, and owners.¹⁴⁰ Increasing the size of a brewery posed substantial costs to brewers. Some breweries underwent several expansions; possibly they hoped to hedge their bets by not expanding too fast too soon. Denver Ale Brewing Co. is one such serial expander.¹⁴¹ Despite the risks, expansion was necessary for long-term increased productivity.

Denver Brewing Co. additions began in 1870 and included a steam engine and "generally increasing the capacity of their works," likely a larger fermenter, kettle, and more casks.¹⁴² Two years later they made considerably larger and more sophisticated changes, increasing the size of

¹³⁸ Susan K. Appel, "Artificial Refrigeration and the Architecture of 19th-Century American Breweries," *The Journal of the Society for Industrial Archeology* 16, no. 1 (1990): 21.

¹³⁹ Lynn Pearson, "Ale and Farewell: the German Style of Brewery Architecture," *Brewery History* no. 123 (Summer 2006): 36.

¹⁴⁰ *Ibid.*, 36-41.

¹⁴¹ Part of their expansion process is a name change to Denver Brewing Co., which will be used henceforth.

¹⁴² *Rocky Mountain News*, January 8, 1870. Page 4, column 3.

their icehouse and overall brewing capacity to 120 barrels a day.¹⁴³ This does not mean they produced this much beer every day, but rather they expanded with an eye to future production. For example, the next year, their production was around 43,300 gallons a month, roughly 1,400 gallons a day.¹⁴⁴

Denver Brewing Co.'s internal growth did not require an expansion of the brewery's walls, but rather a reworking of the space within. On occasion, brewers rebuilt or enlarged their physical buildings. They either outgrew their building after expanding internally, or were forced to rebuild after disaster, particularly fires. One safeguard against fires spreading across the town was by building breweries from brick. This was expensive, and brewery owners needed to consider carefully how large they should expand, the costs involved, if it would temporarily cease operations, and if they should relocate.

City leaders and boosters proclaimed the economic opportunities that Denver offered to Americans and foreigners alike.¹⁴⁵ Investors in Denver's future competed with other Front Range towns for dominance, determined by population size. From the east, hopeful people bent on starting a new life. From the west, dejected men climbed down from the mining camps. For both groups, there was often little support for them. City leaders desired an unskilled, underemployed labor pool.¹⁴⁶ In the 1860s, one man or one family individually ran Denver businesses, and only temporarily hired extra labor. Thus, potential employees were numerous, cheap, and readily available.¹⁴⁷ This would lessen in the 1870s as business grew and industries drew from the

¹⁴³ "The New Brewery of the Denver Ale Brewing Company," *Rocky Mountain News*, January 9, 1872. Page 1, column 4-5.

¹⁴⁴ "Beer," *Rocky Mountain News*, July 27, 1873. Page 4, column 2.

¹⁴⁵ Richard Hogan, *Class and Community in Frontier Colorado* (Lawrence: University Press of Kansas, 1990), 19.

¹⁴⁶ Dorsett, *The Queen City*, chapter one and two.

¹⁴⁷ Hogan, *Class and Community in Frontier Colorado*, 23.

excess labor, but throughout this period Denver elites intentionally built an underclass to power their growing businesses.

As a result of city leaders' efforts to connect Denver to the railroad and unskilled labor pools, a shift in brewery employment occurred in the 1870s. Between 1873 and 1876, west side brewers employed thirteen laborers, equal to all workers in the brewing industry in 1870.¹⁴⁸ These thirteen people represent fixed laborers at breweries. It does not include day laborers that may have helped, but were not primarily employed by a brewery. Thirteen is not a huge number, but it meant that brewers sought a permanent, year-round workforce to fill a demand for beer in the city. A shift from a single-operated business to one with multiple workers with prescribed roles is an essential step in industrial labor. The number of unskilled laborers a brewery employed through a year may have far exceeded the number found in directories. Similar to many businesses along the Front Range, Denver brewers with the financial capacity eagerly soaked up excess unskilled labor.

External decisions were tremendous and made irregularly. More pressing, internal choices about labor and infrastructure consumed breweries' attention and money. Unskilled labor provided the backbone of brewery operations. Stoking fires under brew kettles or in malt kilns; carrying wood, coal, barrels, or other equipment around the brewery; cleaning kettles, casks, ash, or other debris were time consuming, Sisyphean chores that brewery owners likely delegated to lower-paid workers rather than skilled brewers. Their wages are unavailable but presumably low given the economic climate of Denver at the time, and none worked more than two years as a

¹⁴⁸ DMD.

general laborer.¹⁴⁹ After working for a year or two, they moved on to other jobs or towns searching for better opportunities.

Breweries hired more labor as a result of—and response to—increased productivity. Production for Denver brewers is difficult to find, but Colorado statewide statistics are a useful proxy. As a state, from 1863 to 1870 brewers produced 530,000 gallons. Yearly, they averaged 65,000 gallons. By contrast, from 1871 to 1875, they totaled 2,300,000 gallons, an average of 470,000 gallons annually.¹⁵⁰ Denver production likely led other cities and certainly followed these trends. Production of this magnitude was possible only in factory-level facilities.

Professional Maltsters

Malting is a highly scientific process and required careful attention to the grain. These workers occupy an interesting role within the brewery. Their labor was crucial to brewing yet brewers could, and did, import malt from eastern maltsters. Malt is essential though in-house maltsters are not.¹⁵¹ Therefore, their employment signifies a brewery's need of malt beyond what could be reasonably imported. Also, it highlights individual breweries with an eye to a long term brewing business. Both of these are products of the industrial needs and character of large breweries in Denver.

Maltsters perform the first skilled labor step in brewing: malting the grain. Brewing reliable and consistent beer depends on the meticulousness of maltsters. More than any other ingredient, malt bestows the most flavor, color, and mouth feel to beer. Although some innovations to improve and expedite malting have occurred since the nineteenth century, malting

¹⁴⁹ DDD.

¹⁵⁰ *One Hundred Years of Brewing*, 608-9.

¹⁵¹ Compare this to brewers. A brewery cannot operate without a brewer, but brewers often wore many hats, one of which was malting.

itself has remained unchanged for millennia. Unskilled laborers assisted, but maltsters directed the process.

Throughout their work, maltsters needed precision in water content, temperature, and timing. To begin their process, maltsters soak the grain in water and spread them out to germinate. Grains need to have between forty-two and forty-five percent water content and be kept between fourteen and eighteen degrees Celsius to germinate.¹⁵² This process takes several days, during which maltsters may add more water to ensure development.¹⁵³

After the grains begin to sprout, the maltster kilns and dries the grain. During this process, the maltster raises the temperature between 80 and 105 degrees Celsius to drive the water content to single digit percentages. Temperatures too high or low will result in less flavorful malt that could ruin the beer. Lighter malt requires water content of 3.5 to 4% and darker malts need 1.5 to 2%.¹⁵⁴ Lager needs lighter malts, but Denver maltsters created a spectrum of malts for ales, lagers, and porters.¹⁵⁵ These percentages require fastidious attention and practice.

Modern brewers possess utensils to measure these numbers; it is unlikely that nineteenth-century brewers measured water content so precisely. Instead, they watched the coloring of the malt extremely closely, judging from years of experience and training. Thermometers did assist

¹⁵² Sascha Wunderlich and Werner Back, "Overview of Manufacturing Beer: Ingredients, Processes, and Quality Control," in *Beer in Health and Disease Prevention*, ed. Victor R. Preedy (Burlington, MA: Elsevier, 2009), 8.

¹⁵³ Lewis and Bamforth, *Essays in Brewing Science*, 82, 145.

¹⁵⁴ Wunderlich and Back, "Overview of Manufacturing Beer," 10. Proper dark and light malts are made from different types of barley. Darker malts require a higher protein count in the grain and alterations in temperature and water during malting and kilning. Historic Denver brewers would not have been able to be as choosy as brewers today, and so this distinction is not as important.

¹⁵⁵ Carol Horton Tremblay and Victor J. Tremblay, "Recent Economic Developments in the Import and Craft Segments of the US Brewing Industry," in *The Economics of Beer* ed. Johan Swinner (Oxford: Oxford University Press, 2011), 142.

in measuring temperatures through the process.¹⁵⁶ By the latter end of the nineteenth century, malting had transformed along with brewing into a yearlong rather than seasonal occupation. As a result, one of maltsters' tasks was to ensure no spoilage occurred in the barley during storage.

Malting temperatures and duration vary not only by type of malt desired, but also by climate. As such, Denver's climate and elevation posed an additional obstacle for maltsters. Denver is higher, drier, and has more erratic temperature fluctuations than many eastern American or German cities. This affected the amount of water needed for germination, the time allotted for germination, and kilning temperatures.

In 1870, every brewer in Denver reported a malt kiln, and either a malt mill or malt crusher, which performed the same function.¹⁵⁷ Mills were horse-power, which brewers fed with spent malt. Bates' Denver Ale Brewing Co used steam power, a much more powerful but expensive method. Bates spent nine hundred dollars to purchase one hundred tons of coal to power his brewery.¹⁵⁸ He was the only brewer in 1870 to purchase coal, but it must have been a sound investment: his brewery held thirteen thousand dollars in capital and produced over 31,000 gallons that year.¹⁵⁹ This expenditure represents the ways that capital separated breweries by scale of production. Indeed, his brewery was more in line with advanced eastern brewers than his Denver competitors. His competitors caught up in the later 1870s and early 1880s with a profusion of coal-powered machines in breweries.¹⁶⁰

Maltsters themselves emerged as a distinct group in the directory in 1871. Prior to this, brewers likely malted their own grains, hired as needed, or bought malt from eastern

¹⁵⁶ *One Hundred Years of Brewing*, 60-2.

¹⁵⁷ DDD.

¹⁵⁸ DDD.

¹⁵⁹ DDD.

¹⁶⁰ *One Hundred Years of Brewing*, 61-75.

merchants.¹⁶¹ Although published towards the end of this period, *The Western Brewer* advertised parts and ingredients for malting. Its pages promoted rollers, mashers, mills and other equipment to ensure finer more standard malt. The journal is a proclamation of the industrialized character of brewing in the later nineteenth century. Specifically for malting, it suggests an emerging professional class of maltsters in the nation. In Denver, from 1871 to 1876 nine professional, full time maltsters worked for breweries. Similar to the laborers above, they also did not work long term for the same brewery.

One notable example of the flexible and fluid brewing industry is James Pemberton. In 1871 and 1875 he worked as a maltster for the Denver Ale and Brewing Co. During the intervening years, he tried to start his own business: James Pemberton & Co. This company was not a brewery, but rather a bottling company. Clearly, the business did not fare well as it disappears from the record and he returns as a maltster.¹⁶² Again, in 1876 he tries his hand at bottling, perhaps armed with a better understanding of the business. His flexibility and transitions in the brewery business is only remarkable because he remains in Denver for so many years. Many other skilled labors moved from Denver, or out of the brewery business entirely.

Instead of switching so drastically, some maltsters changed employers or roles within the same brewery. For example, Karl Stroh worked in 1874 as a maltster for Rocky Mountain Brewery. The next year he worked for Denver Brewing Co. in the same capacity.¹⁶³ A couple reasons may explain this shift: he was poached, was fired, or fell out with the head brewer. Whatever his reasons, they all point to the competition between breweries and the constant need for skilled labor. Another maltster—George Smith—worked two years as a maltster for Rocky

¹⁶¹ *The Western Brewer* 2, no. 8 (August 1877): 276.

¹⁶² DDD.

¹⁶³ DDD.

Mountain Brewery and was promoted to foreman in 1876. Smith's case emphasizes two trends within Denver and American breweries. First, malting slowly dissolved as a craft and was replaced more and more by machines.¹⁶⁴ Secondly, as a result, middle management emerged in breweries to oversee machines and laborers.

Master Brewers, Master Craftsmen

Today, most of the brewing and fermenting takes place in stainless steel equipment seamlessly transferring the brew through different stages that can be easily sanitized afterwards with chemicals. Nineteenth-century Denver brewers instead used copper piping and kettles for brewing and wooden casks for fermenting. Heat came from wood, or, for some, coal. Losses from spillovers during mashing, boiling, and brew transfers spilled onto the floor and could hurt brewers. All equipment needed to be vigorously cleaned; remnants from prior brews could spoil and contaminant further batches.¹⁶⁵

As a group, brewers maintained an uneasy alliance of skilled workers and industrial tools and innovations. Of the one hundred workers involved in brewing from 1871 to 1876, forty were brewers—almost half of all workers in brewing.¹⁶⁶ Interestingly, some eighteen brewers are unattached to a specific brewery. This could be a result of not telling the directory who they worked for. Or, brewers too were part of the labor pool from which breweries pulled laborers and skilled workers. Regardless, despite machine integration, human brewers remained the heart of brewing.

¹⁶⁴ *One Hundred Years of Brewing*, 61-3.

¹⁶⁵ The various containers and utensils used, along with spills, provided unskilled laborers plenty of cleaning.

¹⁶⁶ DDD.

Brewing is a heavily technical multistage fermentation process. Strict adherence to temperature, ingredients' number and order, and sanitation are essential to reliable, clean, and delicious beer. First, brewers mill the malt to crush the grains' hard shells, in doing so they clean the grain from contaminants and increase the surface for enzyme activity. They then mash the malt by soaking it in water around sixty-five degrees Celsius for an hour. This occurs in a mash tun, which today are stirred by an automatized system that ensures a consistent and even process. Denver maltsters and laborers did not have this luxury, and stirred the mash by hand or drove horses for almost an hour. This creates a product called wort. Lautering is when brewers separate spent malt, called grist, from liquid wort, which is then poured into a copper kettle to boil for another hour. During this time, some brewers add some of their hops or adjuncts to increase the sugar content and hoppy aroma.

Once the beer has gone through these stages, it enters the fermentation segment. After filtered of used hops, wort is now barreled with fresh hops and yeast. This is an important step that differentiates lager from other beer styles: lager is a bottom-fermenting beer, which means that the yeast sinks to the bottom of the barrel, ferments at six degrees Celsius, and takes several weeks. Lager must be stored, either in cellars during the winter or in icehouses over the summer. Ale, on the other hand, ferments in a few days and can handle temperatures up to twenty degrees Celsius. During fermentation, yeast consumes sugars in the brew that entered from the malt and adjuncts. Yeast consumes sugars to produce alcohol: the more sugar, the higher alcohol content.¹⁶⁷ Finally, once fermentation has completed, the beer is ready to sell.

¹⁶⁷ See Wunderlich and Back "Overview of Manufacturing Beer;" Andrea Pavsler and Stefano Buiatti "Non-lager Beer," in *Beer in Health and Disease Prevention*, ed. Victor R Preedy (Burlington, MA: Elsevier, 2008); Pavsler and Buiatti, "Lager Beer;" and Charles Bamforth, *Beer: Health and Nutrition* (Williston, ND: John Wiley & Sons, 2006), chapter three.

Denver brewers did not have the technological equipment of today, but they likewise were not fumbling around in the dark. There were several instruments that brought a scientific aspect to brewing. First, thermometers greatly improved consistency in brewing. Brewers first used them in 1762 to help determine the dryness of malt, the brewing temperature, and lagering temperature. Next, hydrometers (also called saccharometers), used in the late eighteenth century measured the gravity of the wort. Gravity is an indicator of the alcohol content of the beer, and brewers check the gravity as the beer ferments to determine when fermentation is complete.¹⁶⁸ These utensils were imperative for consistent beer in an industrial environment.

Equipment purchases that increased production capacity were one way west-side brewers came to overshadow their east-side neighbors. Essentially, ability to purchase and effectively use large equipment bestowed competitive advantage. West-side brewers wanted large kettles to produce their huge amounts of beer. Conversely, larger kettles would have hindered individual-operated east side breweries for whom smaller kettles were more manageable. Kettle size is difficult to know, but they likely held several gallons.¹⁶⁹ Today, a three-to five-barrel brew kettle can cost several thousand dollars.¹⁷⁰ This size would have worked for east side brewers who made around one hundred barrels a year. To produce several hundred barrels, west side brewers likely used ten or fifteen barrel kettles.

Kettles either came from the east or, after 1871, were locally produced. Railroads carried kettles and piping west. Costs of shipping large kettles would have been considerable. Due to the

¹⁶⁸ *One Hundred Years of Brewing*, 46-9.

¹⁶⁹ Today, a kettle 1.5 times the size of intended brews is recommended to prevent spillovers. <https://beerandbrewing.com/selecting-a-brew-kettle/>.

¹⁷⁰ A modern comparison is instructive yet problematic. Today, kettles' price reflects their more advanced nature; allowance for easier interaction, control, and adjustment; and inflation. Conversely, while more rudimentary, Denver brewers would have faced much higher shipping or production costs.

turbulent life of many breweries, kettles after reaching the Rocky Mountains circulated between breweries. Many brewers struggled in the 1860s due to small population and insufficient networks connecting resources to consumers. In the 1870s, the railroad did away with many of these issues, yet did not guarantee success to brewers. Auctions still dismembered breweries, though in a more systematic fashion. Brewing had become a much larger business, and auction ads became more specific. John Merchant, a Denver brewer, needing seven hundred dollars auctioned off his brewery's building, equipment, storage units, and attendant components. He listed "one brewing kettle, one mash tub, one cooler, one steeps tub, two fermenting tubs, one malt kiln" along with kegs, machinery, and "fixtures."¹⁷¹ This, with the exception of the malt kiln, lists necessary equipment in the order of brewing.

The Highland, or Endlich, Brewery illustrates the process of brewery failure, how the major brewers—in this case John Good and Phillip Zang—controlled the brewery industry, and the capacity of west side breweries. In 1864, Highland Brewery was bankrupt and auctioned off in three parts: the brewery, the brewery ranch (or the land), and the stocks and equipment.¹⁷² Events such as this opened the door for new brewers who wanted to operate their own brewery. It also allowed existing breweries to replace or supplement their operations by purchasing equipment. In this case, however, Good bought out Endlich, renamed it Rocky Mountain Brewery, and had Zang superintend the brewery until he later purchased it from Good.¹⁷³ Instead of an equalizing opportunity for smaller breweries to grow, this was a large brewer who augmented his operations and effectively shut out smaller competitors.

¹⁷¹ "Chattel Mortgage Sale," *Denver Daily Times*, December 12, 1873. Page 4, column 4.

¹⁷² "Attention Capitalists!" *Rocky Mountain News*, December 2, 1864. Page 2, column 1.

¹⁷³ McLeod, *Ghost breweries of Colorado*, 7-8.

The Highland Brewery was disassembled at an auction at the Elephant Auction Stand on the banks of Cherry Creek. The auctioneer advertised, “the machinery is in the best of order” in order to attract brewers.¹⁷⁴ More specifically, the brick brewery included a steam engine, boiler, iron hoops (for cooping), fifty barrels of beer, twelve hundred casks, two horses, one beer wagon, fifty cords of wood, one iron safe, and an ice cellar large enough to hold one thousand barrels.¹⁷⁵ Good bought it all as an investment in his brewing future and because his brewing was so profitable. Once Zang acquired the brewery from Good, he quickly grew the business despite periodic fires and setbacks.¹⁷⁶ The Rocky Mountain Brewery was one of the longest-lived Denver breweries, and in the early 1880s could produce slightly over 230,000 gallons of beer per day.¹⁷⁷

Not all auctions were so close to home, however. The Chicago Brewery in Cheyenne, Wyoming, was auctioned in 1868. A short advertisement in the *Rocky Mountain News* claimed the brewery’s equipment was sufficient to brew a sizable 1,500 gallons a week.¹⁷⁸ The desire to attend an auction one hundred miles away attests to the difficulty of both the brewing industry and the need for large, cheaply gained, brewing equipment.

Auxiliary Industries and Management

Failed breweries were not the only source for kettles; foundries were the major local source of copper kettles. Between 1872 and 1873 a number of foundries emerged in Denver. The 1873 Denver Directory includes a table for comparing manufacturing interests to the previous

¹⁷⁴ “Attention Capitalists!” *Rocky Mountain News*, December 2, 1864. Page 2, column 1.

¹⁷⁵ “Attention Capitalists!” *Rocky Mountain News*, December 2, 1864. Page 2, column 1.

¹⁷⁶ “Brewery Burned,” *Denver Daily Times*, September 29, 1875. Page 4, column 3.

¹⁷⁷ *Rocky Mountain News*, February 16, 1882.

¹⁷⁸ “Auction Sale of a Brewery in Cheyenne,” *Rocky Mountain News*, September 30, 1868. Page 1, column 6.

year. Foundries' holdings increased from \$25,000 to \$48,000, representative of increased demand and industrialization of the Front Range.¹⁷⁹

Interestingly, there does not seem to be a clear foundry district within Denver. Map 2 shows foundries from 1871 to 1876. Only one appears on the west side, located along the Mill Ditch. Two others were north of the liquor urban core, with one final one much further north. The dispersal represents their intended customers. The three within east and west Denver likely catered to Denver customers and industries. The one far to the north may have supplied the mountains, as it is much closer to the rail yards. Proximity to foundries was a mixed bag for brewers. Kettles were large, and to carry them would have posed serious difficulty and effort. Every block less one needed to walk was beneficial. This is true not only for new purchases, but also for repairs and adjustments.

On the other hand, foundries pollute heavily. The only foundry in west Denver, located along the Mill Ditch, likely caused issues with brewers who relied on the same water. Brewing is an exact science, and brewers desperately reduced possibilities for contaminants. Foundry smoke and discharge in the air and water could have seriously compromised beer quality and sanitation. Nevertheless, they provided essential materials to breweries. Complaints levied from brewers to foundries are not common, which suggests a somewhat mutually beneficial relationship.

After brewing, beer was poured into casks. As shown above, breweries had considerable cask storage capacity. Used for fermenting and storage, brewers needed a large barrel supply. For example, Lynn Parkhurst, who produced the least amount of beer in 1870, brewed ninety barrels. This does not necessarily mean that he used ninety distinct barrels. Instead, he probably had a handful that he cleaned and cycled beer through. Beer barrels were likely repurposed from

¹⁷⁹ DDD.

casks sent to Denver from eastern merchants and later built locally. Coopers were not a major source of new casks until the 1870s, and prior to that brewers likely opted for the first option. After this, coopers were key assets for brewers. Coopers repaired, replaced, and built barrels for brewers. Casks wear out after repeated use or damage, and can explode from carbonation.

Brewers were not the only business that needed coopers. As such, cooper's positioned themselves at the city's core along Cherry Creek (Map 2). One cooper located on the east side was within walking distance to east side breweries. Slightly closer to the west side brewers, again the larger brewers with wagons reduced time and effort to obtain casks. Or, brewers with means hired coopers semi-permanently, such as Denver Brewing Co. in 1873. Frank Zweibelhofer worked for only one year, the same year that the brewery greatly expanded their facilities.¹⁸⁰ His term employment coincides with Denver Brewing Co.'s physical expansion. Either his role was to build barrels to set up the brewery for the next several years, or the brewery overestimated their need for a permanent cooper. East side brewers did not have the capital for such business decisions, with the notable example of the Sumner brothers.

Lager brought another dimension to consider; unless brewers had caves (uncommon in Denver) or underground cellars (expensive and small), they built tremendous icehouses. Traditionally, beer was stored underground to lager over winter, but yearlong production of beer required a solution to warm summers. The answer was incredible icehouses that held beer on the first floor covered by layers of bricks. Vents carried warmed air out and circulated cold air in to maintain temperature. For this to work, brewers—or likely unskilled laborers—spent winters harvesting ice.¹⁸¹

¹⁸⁰ DDD.

¹⁸¹ *One Hundred Years of Brewing*, 120-2. Appel “Artificial Refrigeration and the Architecture of Nineteenth-Century American Breweries,” 23-26.

Breweries were bustling buildings. Skilled brewers and maltsters were still an indispensable element of the brewery, but to run an efficient beer factory—as many west side brewers were fast becoming—the brewery needed facility management and white-collar positions. By the 1870s, piping and heating were extensive and expensive. Although breweries contracted people to work on them, they likely preferred in-house fixes. For example, Frederick Rabe of Denver Brewing Co. worked as a brewer there in 1871. He must have been familiar with their brew rigs, and proficient at fixing them, because in 1875 he emerges as an engineer in the directory.¹⁸²

Supervisors and foremen entered breweries as part of their industrial transition. What role they held is difficult to know, but they likely scheduled workers, arranged beer transportation, ensured adequate supplies, and communicated with owners and workers. Brewers and maltsters probably did not care for managerial oversight, which signaled their diminishing independence. Some brewers, however, transitioned into these positions. Frederick Holdrer—a brewer of Colorado Brewing Co.—and George Smith—a maltster at Rocky Mountain Brewery—were promoted to foremen at their breweries.¹⁸³ Promoting from within makes good business sense and helps with morale. These men knew the process of malting and brewing, but more specifically who worked under them, what their equipment was like, and what their brewery produced.

More often, foremen came from outside the company. Colorado Brewing Co. hired a manager and a foreman in addition to their own Holdrer. Rocky Mountain Brewery had two foremen on their staff, one of whom they acquired from Denver Brewing Co.¹⁸⁴ These men,

¹⁸² DDD.

¹⁸³ DDD.

¹⁸⁴ DDD.

similar to the unskilled workers, often did not work for more than two years at a brewery. Their positions were vacant for years at a time. Breweries recognized a need for these positions as they industrialized, but it seems they were still figuring out how to fill these roles. Adolph Leininger at Denver Brewing Co. is an interesting counterexample. He was their supervisor and foreman from 1873 to 1876, and perhaps beyond. They likely recognized the need for a permanent manager during their expansion.

The growing workforce, equipment, and output at these breweries required owners to attend to finances. Astute businessmen already, their growing breweries accrued many more financial details. As a result, some breweries hired office staff that worked as bookkeepers, secretaries, and treasurers. Moritz Sigi hired his relative J.W. Sigi to work as a bookkeeper in 1874 and 1875. Zang employed a man in 1876 for the same purpose. Part of Bates' Denver Brewing Co.'s physical expansion was a personnel one as well. They hired Charles Johnson as treasurer and secretary from 1873 to 1875.

In addition to these adjustments in brewery operations, brewers ventured into other industries. Most notably, Sigi purchased a building, renamed Sigi's Hall, at 244 10th St. in west Denver. Sigi, along with many Colorado Brewery workers, listed 350 10th St. in the directory as their personal or business address. The brewery itself was listed at the corner of Larimer and 10th St.¹⁸⁵ Therefore, he purchased or built an apartment building next door so his workers would live close to work, or because many of his workers already lived there. In either event, he was aware of the risks of losing workers to his competitors, and attempted to integrate his workers closer to his brewery by shortening their commute and being their landlord.

¹⁸⁵ DDD.

One further category of employees yet remains. Drivers and teamsters moved resources to breweries and delivered beer to various businesses. Similar to other laborers, they were exclusively hired by west side breweries. The next chapter turns outward from the brewery and explores how beer, once finished, was distributed.

Chapter Three

Slinging Beer: Distribution across Denver

In 1873 a schism divided brewers, saloons, and customers. Price wars had dropped the accepted price of ten cents per beer to five cents, a threat to small brewers and saloons who bought from them. Driving the prices down were breweries willing to slim their profit margins and saloons eager to purchase cheaper beer. The “Five-Cent Beer War” reveals layered financial tensions between the Denver beer producers and vendors. Several brewers—Bates, Sigi, Zang, Oppenlander, and Stumpf—represented established breweries, mostly on the west side, who wanted to undercut competition by halving their beer prices from ten cents to five. In response, thirty-eight saloon owners banded together into an impromptu guild, the “Saloon-Keepers society.” Their aim was to maintain beer prices against saloons and brewers who sold beer too cheaply. Although their purpose for pegging the price of beer to ten cents is unstated, a likely explanation is saloons’ profit margin. They could pocket more profit if all beer was at least ten cents.

After discussions and a number of beers, they resolved that saloons must refrain from vendors of five-cent beer, resist buying beer from “foreign brewers,” and instead purchase from “home brewers.”¹⁸⁶ Their language and word choice is fascinating if vague. The stipulations for saloons stated they must “buy their beer from home brewers, and not import any beer during the existence of the agreement.”¹⁸⁷ Today, imports typically denote beer from foreign countries, yet in the context of Denver saloonkeepers and brewers it seems any beer not brewed within the city.

¹⁸⁶ “Five Cents, or Ten?” *Rocky Mountain News*, March 13, 1873. Page 4, column 2. Foreign brewers are doubly interesting because most brewers in Denver were not native-born Americans. Therefore they must have understood foreign on a territory or state level.

¹⁸⁷ Ibid.

Home brewing today means brewing at one's house, which likely was what east-side brewers were doing. However, in 1870s Denver this would mean not buying from the west-side breweries, clearly not what they meant. Therefore they likely meant any Denver brewery opposed to beer from other cities or states. Thus, saloons were to buy exclusively from Denver breweries, which provided a local, monopolized market for Denver breweries.

In return, all brewers kept keg prices at \$3.50 and glass prices at ten cents, refrained from selling beer to saloons that sold five-cent beer, and stopped providing drivers with money to buy beer. A secret committee of brewers and saloonkeepers formed to self-monitor adherence to this agreement. These resolutions standardized brewing business practices and were an attempt to protect small brewers and by extension prevent large breweries from monopolizing brewing.¹⁸⁸

This incident is a window into the struggles of the brewing business in nineteenth-century Colorado. Brewers banded together to protect their industry from external threats while they attempted to undermine other brewers within the city; saloons competed and formed unions; and overall it was a self-regulated market without significant government involvement. Capitalism on the frontier was not completely unrestricted, but territorial and municipal government oversight was lacking. Alcohol in particular was a volatile business without consumer protection.

Denver brewers operated in a competitive alcohol market. East side breweries held insecure positions providing beer to local saloons and often did not last more than a year. West side breweries, as a function of their brewing scale, grew larger over this period and dominated the Denver and Colorado beer market with regional distributions. Factory-scale brewers needed to find ever-increasing markets for their beer and employ measures to ensure a sufficient number of consumers. In brewers' efforts to attract customers, large and small Denver brewers, saloons

¹⁸⁸ Ibid.

that prioritized spirits over beer, and the Temperance Movement contested individual brewers' businesses. Denver's business and moral environment can be better understood through a spatial examination of the obstacles other brewers, saloons, and churches presented to the success of individual breweries.

Beer Business

Interbrewery distribution competition revolved around prices, products, and advertisements. The five-cent beer war was not the first time beer price hikes had made the news. In 1865 the *Rocky Mountain News* announced that Good, Sigi, and a short-lived brewery named Alston, Hale & Co. Ale Brewery raised their prices per keg by a dollar. Their justification was the "extreme high price of brewers' stock."¹⁸⁹ A dollar increase markedly raised the cost of beer. Occurring at the end of the Civil War, the costs of importing ingredients may have risen substantially enough to demand this. Almost a decade later, a keg's price had risen to only three and a half dollars. Interestingly, brewers raised, or lowered, prices in groups despite the fact that they were direct competitors and were not organized into a guild or fraternal order.¹⁹⁰

Staking beer at ten cents a glass protected small and big brewers in different ways. Saloons protected east-side brewers from being priced out of business, even if it cost them more to purchase beer. It is unclear why saloons cared, but it raises interesting aspects of brewery-saloon relations. East-side brewers sold beer primarily to saloons, and perhaps maintained a more cordial relationship to the saloonkeepers.¹⁹¹ Or they may have feared the growing

¹⁸⁹ "Live and Let Live," *Rocky Mountain News*, March 1, 1865. Page 2, column 3.

¹⁹⁰ However, Denver Germans often were members of the Turnvereins, a German society, where they rubbed shoulders and discussed business. This resembled the closest group to a brewers' guild.

¹⁹¹ McLeod, *Ghost Breweries of Colorado*, 4.

industrialization of breweries and perceived a threat to their own livelihoods.¹⁹² West-side brewers were protected in Denver from outside competition.¹⁹³ It functioned as a tariff against cheap, outside beer that could flood Denver and destroy all breweries. The larger breweries had much more invested and thus stood to lose much more if they went out of business. The resolutions within the city protected small breweries from large ones, and it protected large breweries from Midwestern industrial brewers.

In setting prices, Denver breweries kept in mind other brewers who wanted to encroach into the city. Two breweries in particular threatened Denver brewers. Golden's Coors, in late 1873, sold beer for five cents a glass.¹⁹⁴ Only around a dozen miles separated Denver from Coors, whose capacity to brew eight hundred gallons daily in a three-story structure replete with their own icehouse, filled with ice from a pond fifty feet away seriously threatened Denver brewers.¹⁹⁵ A surge of mass-produced five-cent beer would damage west side and destroy east side brewers' businesses. Pueblo Brewery posed the second threat to Denver brewers. Although much further away than Coors, they vigorously promoted their three-dollar kegs: "the best ale in Colorado; Unsurpassed by any in America."¹⁹⁶ Denver brewers faced competition from other Colorado brewers and brewers across the Midwest and in response advertised their quality above and beyond any other brewers.

¹⁹² Since saloons relied primarily on cutting and up-charging whiskey, a much quicker way to get tipsy than beer. However, if beer prices dropped substantially, then customers may opt more for beer at the brewery than whiskey (or beer) at the saloon.

¹⁹³ For example, Coors, a threat to all Denver brewers, sold five-cent beer. *Denver Mirror*, November 23, 1873. Page 2, column 1.

¹⁹⁴ *Denver Mirror*, November 23, 1873. Page 2, column 1.

¹⁹⁵ "Golden Jefferson County," *Denver Mirror*, March 22, 1874. Page 2, column 2-3.

¹⁹⁶ "Pueblo Brewery," *Colorado Daily Chieftain*, December 31, 1876. Page 1, column 7. "Pueblo Brewery," *Colorado Weekly Chieftain*, January 6, 1870. Page 3, column 6.

Prices represent one battle breweries fought with each other; flavor and style are another. Breweries needed to differentiate their product to attract customers. As mentioned in chapter two, brewers added a variety of hops and adjuncts, which changed the flavor and aroma of their beer. This allowed them to produce the same styles of beer while making a distinct product. Hale, Alston & Co. advertised ale, porter, champagne ale, cream ale, London porter, and “XXX ale” or strong ale.¹⁹⁷ Cream ale, at this time a mixture of lager and ice, was a favorite among drinking societies, such as the Cream Ale Guards.¹⁹⁸

Although unlikely that every brewer offered such a variety, clearly an array existed within the city. It is difficult to know if small or large brewers experimented with new styles more. A new beer may have allowed smaller brewers to stand out, and attract new customers. Yet, if it proved unpopular they would have lost needed revenue at great expense. Conversely, large breweries could financially risk an experimental batch, but a reputation hit from a bad batch threatened their standing among their competition. There is evidence for larger breweries holding special releases, such as Endlich and Good who released their Rocky Mountain Buck beer for three days only in 1862.¹⁹⁹ Brewers’ and consumers’ conservatism contributed to the continued dominance of lager beer.

Most of the brewery commercial clashes took place through various newspapers. Breweries, since the fall of 1859, delivered beer to newspapers for free advertising.²⁰⁰ This proved a winning strategy, and breweries continued to provide newspaper editors with beer. In

¹⁹⁷ *Daily Mining Journal*, September 15, 1864. Page 1, column 2. It is difficult to know if they were brewers or a forwarding company. They do not appear in the directory as brewers, yet they engaged in the five-cent war on the side of them. One explanation is that they bought beer from smaller brewers or imported it and then sold more widely.

¹⁹⁸ *Rocky Mountain News Weekly*, June 14, 1862. Page 4, column 4.

¹⁹⁹ “The Rocky Mountain Buck,” *Rocky Mountain News*, April 19, 1862. Page 2, column 5. This is a darker beer style, but similar to lager has firm German roots.

²⁰⁰ “Lager,” *Rocky Mountain News Weekly*, November 24, 1859. Page 2.

1861, Endlich Brewery—at this time owned by Good and Endlich—rolled a keg into the *Rocky Mountain News*’ office (RMN). It was the first “Buck Beer ever brewed in the Pike’s Peak county” and that “their wagons have since been delivering that delicious beverage” in Denver.²⁰¹ The news team lost no time toasting Endlich and Good.

Free advertising and staying on editors’ good side were the pull factors behind these deliveries. On the push side, newspapers fed into brewery competitions and goaded breweries to deliver beer. Brewers outside of Denver also plied newspapers with beer. Loveland, a brewer in Golden City, sent a keg of “excellent quality” lager to RMN.²⁰² In 1863 the *Weekly Commonwealth* claimed a brewer in Black Hawk brewed an excellent lager, “a decided improvement on our Beer in Denver.” After musing why Denver did not have such quality beer, they asked, “friend Endlich, send us a keg, and then we can tell more about yours.”²⁰³ In 1864, after Good took control of operations, they rolled a new beer to RMN. Once again, the editors praised it for having “double the body which beer heretofore possessed in this city” and that this beer is proof that Denver will “beat the west for lager, ale, and porter.”²⁰⁴ By preying on intercity and interbrewery competitions, newspapers fanned wars between brewers that took place on their broadsides.

Moritz Sigi understood the power of journalism. The tenuous situation of many small breweries in relation to larger ones, and between larger ones seeking to capture ever-increasing share of the market, put brewers in a precarious position. A few hostile articles condemning a brewer’s quality, cleanliness, or price could hamstring a brewery’s customer base and destroy

²⁰¹ *Rocky Mountain News*, May 18, 1861. Page 3, column 1.

²⁰² “We Can Bear it,” *Rocky Mountain News*, June 4, 1866. Page 4, column 2.

²⁰³ *Weekly Commonwealth*, June 4, 1863. Page 4, column 2.

²⁰⁴ “Bully Beer,” *Rocky Mountain News*, November 7, 1864. Page 1, column 1. Interestingly, they specify that the Rocky Mountain Brewery will beat the west, suggesting that people were aware of the culminating takeover.

their business. His Colorado Brewery quickly upon opening delivered beer to RMN in 1864. The team unanimously praised the beer as “second to none that’s brewed in Colorado” and that they fully endorse the brewery to “a full share of public patronage, in Denver and the valley towns surrounding.”²⁰⁵ This statement is a nod not only to taste, but also the breadth of Sigi’s distribution.

Sigi’s relationship with various Denver newspapers formed a cornerstone of his business strategy, and he engaged newspapers several times in 1870 during the expansion era of Denver brewers. In 1868 he provided the *Daily Colorado Tribune* with “a big keg of tip-top lager” and received praise for “beer which [sic] tickles every one’s palate.”²⁰⁶ In the spring of 1870, “In accordance with a long established custom” Sigi delivered a keg of beer to the *RMN* office. His Buck beer received the customary praise, along with the editor’s suggestion to procure the beer at his west Denver beer hall or have it delivered to their saloons or homes.²⁰⁷ In November of that year, he rolled in another keg. This time, his “excellent traits as a citizen and a brewer” were exclaimed along with the beer itself and an exhortation for Denverites to avail themselves of Colorado Brewery’s beers.²⁰⁸ Although not quite free advertising, his positive relationship with Byer’s staff paid dividends in patrons and protecting his business from venomous attacks in the newspapers.

In addition to buttering up newspapers, breweries outright bought advertisement space, often for considerable durations. Denver Brewing Co.’s completion in 1869 was followed immediately by an advertising campaign. It opened to provide drinkers with “the most superior

²⁰⁵ “The ‘Colorado Brewery,’” *Rocky Mountain News*, December 6, 1864. Page 3, column 2.

²⁰⁶ “Beer,” *Daily Colorado Tribune*, May 10, 1868. Page 4, column 1.

²⁰⁷ *Rocky Mountain News*, April 30, 1870. Page 4, column 4. They note beer deliveries are an established practice, both praising Sigi for his continual provisioning of the staff and a prescription for other brewers who wished to grow their business.

²⁰⁸ *Rocky Mountain News*, November 20, 1870. Page 4, column 3.

stock and cream ale, and porter ever manufactured in this city.”²⁰⁹ For the next year, they relentlessly ran two advertisements, both promoting the quality of their cream ale and porter and their delivery services to homes, saloons, and hotels.²¹⁰ Advertising so heavily after opening attests to the need for visibility among the competing providers of alcohol and the financial capital Denver Brewing Co. held at its inception.

These snippets reveal a great deal about how beer was distributed across the city and region. In these vignettes, kegged beer is rolled into offices from wagons, primarily from west-side brewers. Beer, packaged in kegs or bottles of various sizes, were transported to saloons, houses, and hotels. Colorado Brewery “Delivered in any part of the City” while Denver Brewing Co. delivered in “any quantities that may suit the purchaser” to “wherever directed.”²¹¹ Beer was bottled before transportation through the city and region.

Denver breweries contracted bottling services rather than bottle in-house.²¹² James Pemberton’s foray into bottling suggests that bottlers were distinct from breweries, and indeed the directories separate ale and beer bottlers from breweries.²¹³ One business, the Cave Bottling Warehouse, bottled beer and delivered it free.²¹⁴ Bottlers also retailed beer, for example Pieree

²⁰⁹ *Rocky Mountain News*, August 14, 1869. Page 4, column 3.

²¹⁰ For example, *Rocky Mountain News*, October 16, 1869. Page 4, column 6; December 14, 1869. Page 4, column 6; January 25, 1870. Page 4, column 6; March 18, 1870. Page 4, column 6; April 19, 1870. Page 4, column 5.

²¹¹ “Colorado Brewery,” *Rocky Mountain News*, June 11, 1866. Page 2, column 4. “Denver Ale Brewing Company,” *Rocky Mountain News*, March 18, 1870. Page 4, column 6.

²¹² Though this was not ubiquitous in Colorado. Pueblo Brewery, a fairly substantial business, possessed in-house bottling capacity. *Colorado Weekly Chieftain*, November 19, 1868. Page 3, column 2.

²¹³ DDD.

²¹⁴ *Denver Daily Times*, May 7, 1873. Page 4, column 6.

Skehan bottled and sold “in bottle or keg” specifying “Bates’, Sigi’s and Good’s Lager Beer” among other alcohol.²¹⁵

Collectively, from 1870 to 1876, west-side brewers hired nine drivers and teamsters to deliver their beer.²¹⁶ The expenses incurred from paying workers and maintaining horses, wagons, and accessories attest to the scale of sales and the amount of beer transported through the city. These wagons carried ingredients and materials to the breweries and redistributed the final product across the city. Although a small group, they had a sizable impact on brewing business. Drivers were the personal connection between saloons and brewers. Their conduct was paramount for brewers to maintain contracts with saloons. Dropping, breaking, or disturbing casks disrupts the quality of the content inside, and saloons that had a selection of brewers to purchase from would not tolerate sloppy deliveries. Further, drivers drove billboards through town, and their conduct directly reflected on the brewery. Additionally, Denver Brewing Co.—and likely others with wagons—allowed people to place orders for beer delivery directly from the driver.²¹⁷

Smaller breweries were attached to certain saloons, or allowed people to purchase beer for home consumption.²¹⁸ They did not possess the equipment, capital, or spatial resources to brew at the same capacity as west-side breweries. Access to water was a major reason for this distinction. They made a conscious decision to sacrifice easy access to water in exchange for proximity to their customers. Map 3 demonstrates the consistency of saloons’ location over almost a decade. The mean center of all saloons in 1866 and 1873 are only 170 meters apart, which is extremely close. Map 4 illustrates the number of east side brewers within the first

²¹⁵ *Denver Daily Times*, June 2, 1873. Page 1, column 5.

²¹⁶ DDD.

²¹⁷ “Denver Ale Brewing Company,” *Rocky Mountain News*, March 18, 1870. Page 4, column 6.

²¹⁸ McLeod, *Ghost Breweries of Colorado*, 4.

standard deviation—sixty-eight percent—of 1873 saloons’ mean center. As can be seen, from 1859 to 1876 several breweries opened, and closed, within this area. The proximity of saloons to these brewers suggests a benefit for their distribution. Conversely, it also points to the harmful impact saloons had on these small breweries since none lasted more than a year.

These brewers may have been brewing as a stopgap measure, to give themselves employment until another opportunity opened. This is difficult to examine given the transitory nature of people in Denver at this time and the unstandardized record keeping or addresses and names. If they were trying to merely make some money in the short term, it makes sense they did not invest heavily in advertising or equipment. However, they must have had some materials to brew beer, which represents some form of investment and some vision for long term brewing. Therefore, it is possible that they wanted to run their breweries longer than a year, but operation costs were too steep for a sustained brewing business.

Of course, smaller breweries could not afford to purchase advertising space or to deliver free beer to newspapers. This severely disadvantaged them from competing on top of their production limitations. Their survival depended on direct contracts with saloons. That these breweries rarely lasted more than a year implies saloon contracts were for a similar duration. After closing, saloons contracted with another small brewery, or, increasingly into the 1870s, bought in bulk from the west-side brewers. By 1876 the barriers to start a new brewery were prohibitive due to the near monopolization west-side Denver brewers had established. The high production, distribution, and power big brewers created allowed them to dominate the local market, and even distributed to Laramie, Wyoming or Salt Lake City, Utah.²¹⁹

²¹⁹ In this case the Denver Brewing Company, but likely other big brewers sent their beer past state lines. *Rocky Mountain News*, May 28, 1873.

Railroads connected Denver brewers to ingredients, but also brought them into contact with competition. Spirits still far outweighed beer imports, though some merchants did purchase beer in the 1870s, due to refrigeration's progress by the late nineteenth century. Beer's risk of spoilage during overland travel benefited local breweries in their competition with imported beer.²²⁰ The United States Rolling Stock Co. ran trains between Chicago and New York with two thousand pounds of ice that lasted several days.²²¹ Tiffany's, a rail manufacturer, advertised, "the most perfect Refrigerator Car ever Invented or Patented" capable of shipping beer all year round.²²² By no means perfect, these companies point to the growing power and potential of shipping spoilable products across the country. For example, F. Behris, either a saloonkeeper or hotelier, had fifty beer kegs unclaimed at the railroad depot.²²³ Whatever Behris' reason for leaving such an amount of beer at the railroad, it points to the high volume of beer coming to Denver.

Authenticity was an important aspect of the alcohol industry in Denver. Claiming equity with alcohols in the east, or advertising the product itself, was a defensive tool for retailers and brewers. Saloonkeepers needed to establish credibility and safety in their products after the reputation gained from the low availability of quality alcohol in the early Gold Rush. As early as 1860 one saloon advertised, "Imported champagne and Swiss Absinthe" and cream ale as far as Pittsburg for beer drinkers.²²⁴ Likewise, breweries claimed superiority to eastern brewers. Denver Brewing Co., as part of their advertising campaign, provided the RMN with beer

²²⁰ West, *The Saloon on the Rocky Mountain Frontier*, 107-8.

²²¹ *The Western Brewer*, August 15, 1877, 279.

²²² *Ibid.*, 318.

²²³ "Unclaimed Freight," *Rocky Mountain News*, June 15, 1873. Page 1, column 5.

²²⁴ "Important Notice for Ale Drinkers," *Denver Daily Times*, November 15, 1873. Page 4, column 3. Soon after, liquor stores advertised spirits from across America, and imports from the Caribbean, British Isles, and Europe.

reported, “equal to Sands’ celebrated ale of Chicago, or to Bass’ English ale.”²²⁵ Denver breweries attempted to stem the appetite for external beers with some success, but the late 1870s and early 1880s brought increasing competition.

Saloons and Breweries

After other breweries, brewers competed and cooperated most closely with saloons. Saloon businesses, broadly defined, were second in Colorado only to mining in the early 1860s and attracted a majority of available disposable income.²²⁶ Historian Elliot West has traced their development in conjunction with the mining industry. First, saloons were scabbled together from canvas wagons and tents. Most did not progress past this stage when local mines were not as full.²²⁷ If the mine proved reliable, they acquired a more permanent structure of wood with internal fixtures such as a bar, tables, and chairs that the first iteration lacked. Finally, after a town had grown around the continuing-prosperous mines, stratified brick-and-mortar saloons that catered to elites and commoners emerged.²²⁸

As the five-cent beer war illustrates, though, brewers and saloonkeepers occasionally did not agree on pricing and sales. Beer, per volume, simply did not compare with the profits that whiskey attracted. Its price included shipping ingredients and equipment to Denver, and beer cannot be diluted like spirits to extend supplies.²²⁹ Advertisements in the directory bear this out.

²²⁵ *Rocky Mountain News*, August 14, 1869. Page 4, column 3.

²²⁶ Hogan, *Class and Community*, 30.

²²⁷ Alice Cowen Cochran, *Miners, Merchants, and Missionaries: The Roles of Missionaries and Pioneer Churches in the Colorado Gold Rush and Its Aftermath, 1858-1870* (Metuchen, NJ: Scarecrow Press, 1980), 34.

²²⁸ West, *The Saloon on the Rocky Mountain Frontier*, 28-38.

²²⁹ Beer can be made weaker by using less malt, or replacing with adjuncts, but either way it requires equipment. W.J Rorabaugh, *The Alcoholic Republic, An American Tradition* (New York: Oxford University Press, 1979), 108.

In 1866, the directory had three saloon or restaurant advertisements that directly mention beer or ale out of twenty-nine total.²³⁰ Distance between brewers and saloons had several consequences. Brewers competed with saloons for customers, and thus being next door to saloons offered a way to attract customers. At the same time, saloons sold beer and brewers nearby reduced the distance needed to transport their beer to saloons. Conversely, large industrial brewers took up considerable space could not be neighbors to saloons. Thus, the spatial relationship breweries navigated in locating themselves near, but not next door to, saloons was a difficult business decision.

Saloon ownership, though risky, offered one way to strike it rich in Colorado. Saloons relied on constant shipments from the east and south, such as Kansas City, Independence, and Santa Fe. Whiskey, the primary liquor served at saloons, had flowed west in the early years of the 1800s into Indian Territory long before the Gold Rush through government workers' rations and itinerant merchants.²³¹ In Colorado, William Bent's depot was a central place that attracted liquor that was traded across the future state.²³² For most of the nineteenth century Denver continued inherited patterns of importing whiskey, driving prices up, and selling abundantly.

Since whiskey was imported rather than locally distilled, shipping businesses that supplied saloons and their patrons stood to grow wealthy. Denver distribution companies, aided by the networks connecting the city across the state, were among the wealthiest. As early as 1861 companies opened in Denver exclusively to bring whiskey west and forward onto the many mining camps.²³³ And they imported massive quantities of alcohol. Stebbins and Porter, owners

²³⁰ DDD.

²³¹ William Unrau, *White Man's Wicked Water: The Alcohol Trade and Prohibition in Indian Country, 1802-1892* (Lawrence: University Press of Kansas, 1996), 20-21.

²³² *Ibid.*, 33.

²³³ West, *The Saloon on the Rocky Mountain Frontier*, 106-7.

of one of many liquor warehouses, offered for sale thousands of gallons of assorted liquors.²³⁴ These vendors were prolific, for example in 1873 there were fifty-three saloons, ten liquor dealers, and numerous liquor-providing hotels and restaurants.²³⁵

Alcohol could be purchased nearly anywhere in Denver. Liquor stores and saloons provided the most direct access, but hotels, restaurants, and grocery stores were keen on selling profitable liquor. For example, in 1866, J. Schueler, a confectioner advertised a bar within his store that offered wines to waiting customers, or the Colorado Bakery and Saloon, a vendor of baked and alcoholic goods.²³⁶ The liquor urban core comprised the most populous, frequented, and prominent space within the city and illustrates the stability of saloons (Map 3). Essentially, saloons occupied the heart of Denver for this entire period.²³⁷ Walking down any major street east from Cherry Creek one would run into numerous saloons and bars.

Despite occasionally tense relations between brewers and saloons, saloons were the primary drinking establishments in Denver and breweries relied upon them to sell their beer. Selling beer at the brewery only offered one venue and opportunity for brewers to connect to customers. By distributing beer to multiple saloons across town, breweries were able to reach a wider range of customers. Breweries and saloons were business partners and occupied much of the same space in Denver.

Churches and Temperance

Spirits maimed and debilitated people. Overdrinking, especially when adulterated, led to serious health problems. The Temperance movement grew out of a concern for men's drinking

²³⁴ *Rocky Mountain News*, December 31, 1866. Page 2, column 5.

²³⁵ DDD.

²³⁶ DDD.

²³⁷ Noel, *The City and the Saloon*, chapter six.

as it affected familial and societal harmony.²³⁸ Women spearheaded the Temperance Movement in the mid-nineteenth century and formed the Women's Crusade and the Women's Christian Temperance Movement. Temperance was a tremendous force in America on state and national levels, leading many states to preempt the 18th Amendment through state-legislated prohibition of the manufacture, sale, and purchase of alcohol.

Temperance posed the greatest existential threat to Denver brewers in the nineteenth century. Nationally, it had been a surging movement for decades driven by changing gender roles, labor structure, and poor transportation routes encouraging distillation. Higher production of alcohol and increased demand by people increasingly anxious and adrift led to even heavier drinking. Industrialization provided people with more drink while people drank to escape their new dangerous and uncertain circumstances.²³⁹ Church-based Temperance intersects with the German cultural affinity for beer, the industrial nature of beer production, and the spatial dimensions of Denver. Overall, Temperance did not exert much influence on Denver brewers during this period and churches occupied a distinct region in the city, effectively distancing the brewers from Temperance bastions.

The Civil War greatly disrupted the Temperance movement. People directed their efforts towards supporting the war rather than teetotalism, and the widespread belief in the medicinal properties of liquor all detracted from the movement.²⁴⁰ After the war, Protestant churches resumed their resistance to alcohol consumption, joined by several fraternal lodges, notably the

²³⁸ Burns, *The Spirit of America*, 71-2.

²³⁹ See Eric Burns, *The Spirit of America: A Social History of Alcohol* (Philadelphia: Temple University Press, 2004). Rorabaugh, *The Alcoholic Republic*, 173.

²⁴⁰ Ann Marie E. Syzmanski, *Pathways to Prohibition: Radicals, Moderates, and Social Movement Outcomes* (Durham: Duke University Press, 2003), 36. Rorabaugh, *The Alcoholic Republic*, 38-42.

Good Templars.²⁴¹ This lodge had an early and long-lasting presence in the Denver.²⁴² The movement in the West took on a different form than in the East due to the paucity of churches and families.

Beer complicated Temperance policies. Drys praised beer and ale as temperate, healthful drinks. Indeed, the first brewery in Denver received praise for providing “a drink not deadly in its effects” hopefully contributing to “decrease the present consumption of strychnine whiskey and Taos lightning.”²⁴³ Lager beer’s lighter and slightly transparent character allowed one to see impurities or contaminants more clearly than in dark whiskeys.²⁴⁴ Beer had been hailed as the sober and healthy drink since colonial America, and this ideology was transported west in the face of potent and deadly whiskey derivations.²⁴⁵ Yet, beer contained alcohol and by extension the propensity to intoxicate, and thus posed a threat to social order. Some Drys viewed it as a gateway to drink stronger and more harmful drinks.²⁴⁶ Others saw it as a lesser evil, and welcomed wine and beer drinkers as allies against distilled drinks.²⁴⁷ In Denver, drinkers and carousers consumed beer and liquor in similar circumstances and Drys targeted the two alcohols.

Eastern churches sent missionaries to preach Christianity and Temperance to men in the gold fields, saloons, and around Denver. These missionaries sought to civilize and temper the

²⁴¹ Syzmanski, *Pathways to Prohibition* 36

²⁴² Cochran, *Miners, Merchants, and Missionaries*, 13.

²⁴³ “Lager,” *Rocky Mountain News Weekly*, November 24, 1859. Page 2, column 4.

²⁴⁴ I am indebted to Samuel Bock for this insight.

²⁴⁵ Most famously, Increase Mather and Dr. Benjamin Rush advocated for beer over whiskey. For more on beer’s healthfulness as a defense against Temperance, see Lyndsay Danielle Smith, “A Temperance and Wholesome Beverage: The Defense of the American Beer Industry, 1880-1920,” (Master’s thesis, Portland State University, 2018).

²⁴⁶ Ian Tyrrell, *Sobering Up: From Temperance to Prohibition in Antebellum America, 1800-1860*, (Westport, CN: Greenwood Press, 1979), 135-7.

²⁴⁷ *Ibid.*, 148. Mark Edward Lender and James Kirby Martin, *Drinking in America: A History* (New York: Free Press, 1987), 69.

violence that was rampant in the 1860s.²⁴⁸ Alice Cochran, a church historian, notes that preachers were not directly opposed to saloons, as was the case in much of their eastern counterparts, but instead wanted to stem the violence and disorder engendered by overdrinking.²⁴⁹ Indeed, many early church services were held in saloons, and later saloonkeepers contributed money for building churches.²⁵⁰ Certainly Denver churches were opposed to heavy drinking, but the missionaries assumed a more measured approach to saloons. Churches occupied a distinct region in the city and their separation from saloons Map 5 compares saloons' and churches' first standard deviation distribution. Only one church is within the 1873 saloon's first standard deviation, which suggests that people did not like their churches and saloons near each other.

This is not to say alcohol-fueled violence in early Denver was not a problem. Beyond physical violence, it interfered with electoral processes.²⁵¹ Like many elections across the nation, early Denver elections were opportunities for debauchery and heavy drinking. By the 1870s this had somewhat calmed down. A commenter on recent elections noted the peaceful nature of the hotly contested elections. The explanation for the “commendable absence of drunkenness” was due to “saloons were closed, and but comparatively little liquor was sold.”²⁵² Politicians provided liquor at elections since before the Revolution, and clearly influenced the climate of politics.²⁵³ Similarly, beer proved an apt political tool in Denver. DeLano, a man running for

²⁴⁸ Ibid., 37.

²⁴⁹ Ibid., 25, 120-123.

²⁵⁰ Noel, *The City and the Saloon*, 12.

²⁵¹ See Clare V. McKanna Jr., “Alcohol, Handguns, and Homicide,”

²⁵² “The Election,” *Rocky Mountain News*, September 10, 1873. Page 4, column 2.

²⁵³ For examples, see Rorabaugh *The Alcoholic Republic*, 20, 26, 35.

local office, took a cue from breweries seeking free advertising and sent a “large keg of beer” to the *Rocky Mountain News*’ office.²⁵⁴

Beer fueled celebrations for business elections and accomplishments. On May 15, 1875, beer was supplied at two celebrations. One celebrated the first Hook and Ladder Co.—presumably a fire company—and their success in using new ladders. They provided one keg, and Bates provided the second, making “quite a joyous celebration.”²⁵⁵ The other celebration was for J.K. Bates Hose company elections, where “the patron of the company sent around a keg of his best beer.”²⁵⁶ These festivities, although with less alcoholic drinks, were still causes of concern for Drys.

The relationship between churches and beer is less clear than churches and whiskey or saloons. Map 6 compares breweries churches proximity. A one hundred foot buffer was placed around each church to signify eyesight from the street. Of course, buildings or empty lots would impact direct vision, but one hundred feet seemed reasonable to know that one was close to a church. What this map highlights are the spheres of churches and breweries. Most churches were in east Denver, surrounding on east side breweries on the southeast to northeast perimeter. Although many east side brewers were outside the buffer zone, if it was increased to 150 feet they certainly would have been within it. Though this does not prove the negative impact churches had on east side brewers, the spatial relationship likely deterred patronage at these breweries.

²⁵⁴ *Rocky Mountain News*, April 2, 1866. Page 4, column 3.

²⁵⁵ *Rocky Mountain News*, May 15, 1875. Page 4, column 1.

²⁵⁶ “J.E. Bates Hose Co. Elections,” *Rocky Mountain News*, May 15, 1875. Page 4, column 3. This is not to suggest this was a brewery, rather he purchased and distributed a keg of quality beer.

Denver brewers, after creating beer, had yet another hurdle. They contended with each other for a share of the market, with saloons over prices and stocking, and with Temperance advocates wanting to end alcohol trade and consumption. Big brewers, as a function of their capital and scale, were better situated to overcome these issues. Yet, smaller breweries continued to benefit from their position within the city. Brewers' ability to surmount distribution problems attests to their growing stability and prominence in Denver. Ultimately, distribution is the most important spatial and industrial challenge to overcome. Importing raw materials and hiring labor is only possible with profits from selling beer. Sustained sales funded growth and improvements and provided large Denver brewers a base from which to fend off brewers from outside their city and extend their distribution into other Colorado cities.

Conclusion

Home Industry: Denver Beer versus Midwestern Brewers

In the mid 1870s, dominant Denver breweries had emerged and crowded out interlopers or small-scale start-ups. Moritz Sigi, one of the earliest, wealthiest, and most established brewer died in 1874 in an accident, but his brewery assumed new ownership, maintained its name, and continued to function.²⁵⁷ Where before breweries lived or died based on their head brewer, Denver breweries had matured to a stage that the business could outlive the founding brewer. The roots of Denver brewers were deep enough to survive the next decades until Colorado Prohibition in 1914, though even then the Tivoli, a successor to the Rocky Mountain Brewery, survived until the 1960s.²⁵⁸

Denver brewers by the mid-1870s had settled into the patterns they would hold until Prohibition. Small brewers were unable to produce beer in the same amounts and as cheaply as west-side factorial breweries. West-side brewers had effectively connected themselves to raw materials, labor, and consumers. Beginning around 1874, and in full force by the late 1870s, Denver brewers exported excess beer across the Front Range. After 1876, Denver exports entered a new phase. First, they began to look outside their city and newly minted state for new consumers. Second, external breweries began to look to Denver in the same way. Denver brewers entered a regional competition, which pitted them against brewers in St. Louis and Milwaukee who had, among other Midwestern cities, long operated at industrial levels.

²⁵⁷ Stanley Baron, *Brewed in America: A History of Beer and Ale in the United States* (Boston: Little, Brown and Company, 1962), 248.

²⁵⁸ Coel, Barker, and Karen Gilleland, *Tivoli*, 9, 44.

Denver Brewing Co. as seen in its prescient expansion earlier in the decade, now looked to export beer widely. Its shipments to Laramie and Salt Lake City were “the first carload shipments ever made from Colorado” of beer to another state.²⁵⁹ Soon after, Zang and Sigi joined Bates in exporting beer across Colorado. From Trinidad to Leadville businesses advertised their stock of Denver beer. In Trinidad, the Palace Billiard Hall where “you’ll always find fresh Denver beer on tap” received twenty-five kegs of Bates’ beer in 1875.²⁶⁰ H. Hibsche, owner of a hotel, restaurant, or saloon, advertised a free lunch with the purchase of “Denver beer at five cents a glass” after having received “a lot of Denver beer.”²⁶¹ Denver brewers were so successful in exporting their beer across the Front Range and beyond that the *Rocky Mountain News Weekly* reported, “they drink nothing but Denver beer in Laramie.”²⁶²

Pueblo was a favorite destination for Denver beer, an interesting phenomenon given its own thriving brewery industry and low population of slightly over three thousand souls in 1880.²⁶³ A number of drinking halls offered Denver beer. One, Arkansas Hall used its supply of Denver beer as an advertising tactic. It offered “good Denver beer, cool and refreshing” a point they prided themselves on.²⁶⁴ Though advertisements listed Denver beer, Sigi was the only brewery named and even then only occasionally.²⁶⁵ This either suggests unfamiliarity with the names of other Denver brewers, and thus no effort to distinguish one from the other. Or,

²⁵⁹ “Beer,” *Rocky Mountain News*, May 28, 1873. Page 4, column 4.

²⁶⁰ *Trinidad Enterprise*, June 25, 1875. Page 3, column 4.

²⁶¹ “Free Lunch,” *Leadville Daily Herald*, December 24, 1880. Page 4, column 4. “Just Received,” *Leadville Daily Herald*, December 24, 1880. Page 4, column 4.

²⁶² *Rocky Mountain News Weekly*, April 14, 1875. Page 3, column 6.

²⁶³ U.S. Census Bureau, *Statistics of the Population of the United States June 1, 1880*, 113. Denver by contrast had over 35,000 people.

²⁶⁴ *Colorado Daily Chieftain*, June 9, 1874. Page 4, column 2. *Colorado Daily Chieftain*, March 8, 1874. Page 4, column 1.

²⁶⁵ *Colorado Daily Chieftain*, May 5, 1874. Page 4, column 1.

Arkansas Hall attempted to disguise which Denver beer they sold in an attempt to attract more customers.

Arkansas Hall's efforts to expand the perceived array of Denver beers were an attempt to compete with the several other Denver-beer vendors in Pueblo. The Atlantic Hall sold Denver beer, "superior to any in the territory" for five cents a glass.²⁶⁶ Of the several Denver beers possible, they only sold "the best and coolest."²⁶⁷ This again obscured the actual brewer, but emphasized the connection between Denver beer and quality. In addition, their advertisements directly flaunted the agreements made after the five-cent beer war only a year later. Perhaps mindful of this gentleman's agreement, or for purely financial reasons, Harmony Hall sold Bates' beer for twenty-five cents a quart.²⁶⁸ Denver brewers from the mid-1870s to 1880, in need of new markets for their enlarged brewing operations and aided by expanding rail lines, flooded Pueblo with beer.

Similar to how Denver brewers attempted to block incursion from outside breweries, Pueblo brewers also attempted to hinder their northern neighbor's imports. As early 1868 Pueblo Beer Brewery improved their facilities to stave off competitors. The *Colorado Weekly Chieftain* proclaimed Anker's beer was "equal to any manufactured in the Territory" and that Anker was "determined to manufacture his beverages equal to the best" and allow people to purchase beer locally rather than order from the east.²⁶⁹ Although uncertain in the 1860s, by the 1870s Pueblo would lose miserably in the arms race against Denver brewers. Cities and their breweries were united in the competition for Front Range dominance.

²⁶⁶ *Colorado Daily Chieftain*, June 18, 1874. Page 4, column 3.

²⁶⁷ *Colorado Daily Chieftain*, July 22, 1874. Page 4, column 1. The Atlantic had several snippets in the column advertising cold Denver beer for five cents in various ways.

²⁶⁸ *Colorado Daily Chieftain*, November 12, 1876. Page 4, column 2.

²⁶⁹ *Colorado Weekly Chieftain*, November 19, 1868. Page 3, column 2.

In 1874, the *Colorado Daily Chieftain* avowed Pueblo's City Brewery beer to be "equal to any in Denver, or other beer we ever tasted."²⁷⁰ Later that year, although no pharmacy existed in Pueblo, the *Colorado Daily Chieftain* suggested doctors recommend Pueblo City Brewery for illness, in part because "it beats Denver beer for purity."²⁷¹ So good, in fact, that it was "a mystery to us why persons should send out of the city for beer."²⁷² Their taste buds may be called into question, as the editors round off the column projecting, "the motto of all should be, patronize home institutions, and thereby keep all the money we can at home."²⁷³ In the era of rapidly growing transportation and nation building across the U.S., home institutions were narrowly defined at the municipal level.

Pueblo was not the only city that attempted to ward off Denver beer. John Summer and his brother, likely the same pair that in 1873 worked a brewer-cooper business in Denver, asked people to try their Georgetown Brewery and "support home industry."²⁷⁴ The constant refrain to support home industry was not merely to keep money within their cities; brewers in places other than Denver proudly produced quality beer. For example, Excelsior Brewing Co. proudly trumpeted their first place at the 1877 Great Exhibition in St. Louis.²⁷⁵

²⁷⁰ Properly, it is called City Brewery, but I have added Pueblo to the title to differentiate it from the City Brewery in Denver. "City Brewery," *Colorado Daily Chieftain*, March 6, 1874. Page 4, column 2.

²⁷¹ Although joking, beer is once again portrayed as a healthful beverage. "Hurrah! You Beer Drinkers," *Colorado Daily Chieftain*, May 2, 1874. Page 4, column 2.

²⁷² The city, presumably, was Denver. "City Brewery," *Colorado Daily Chieftain*.

²⁷³ Ibid.

²⁷⁴ *Georgetown Courier*, June 27, 1878. Page 4, column 7.

²⁷⁵ Not to be confused with Black Hawk's Excelsior Brewery and Saloon. *Colorado Daily Chieftain*, June 30, 1878. Page 3, column 5.

Similar to Pueblo City Brewery, Excelsior's beer was "recommended by the very highest medical authority for its purity."²⁷⁶ These accomplishments are more striking after the brewery's tumultuous history. Anker, who later ran Pueblo Beer Brewery, sold "the only beer brewery in southern Colorado" with attendant equipment in 1870 at fire sale prices.²⁷⁷ The new proprietors reinstated the brewery and medaled in a beer competition in St. Louis, one of the largest beer manufacturing cities at the time. Boulder brewers also worried about Denver beers. Cook, one Boulder brewer, produced a quality product purported to be superior to any beer and indeed recommended by doctors as a summer beverage.²⁷⁸

Despite these triumphs, and attempts at parity, smaller Colorado breweries were unable to compete with Denver and especially with Midwestern breweries. Milwaukee and St. Louis breweries looked to Colorado for new markets much like Denver had cast about the state. Midwestern breweries were larger, more numerous, and more commonly industrialized. At a state perspective, in 1880 Colorado had roughly 150 brewers and maltsters while Missouri and Wisconsin had approximately 1,200.²⁷⁹ Beer output matched their employment. Between 1876 and 1880, Colorado increased annual beer production from 710,000 to 1,500,000 gallons. In the same time, Wisconsin grew from around 14,000,000 to almost 25,000,000 gallons. Likewise, Missouri brewers augmented production from 13,000,000 to around 22,600,000 gallons per

²⁷⁶ If that was not enough, it was also "the best in the world." *Colorado Daily Chieftain*, June 30, 1878. Page 3, column 5.

²⁷⁷ "For Sale at a Bargain!" *Colorado Weekly Chieftain*, June 9, 1870. Page 2, column 6.

²⁷⁸ *Boulder County News*, April 20, 1870. Page 3, column 2.

²⁷⁹ U.S. Census Bureau, *Statistics of the Population of the United States June 1, 1880*, 764-5, 773. These numbers do not capture the extensive industrialization these states integrated into their breweries.

annum.²⁸⁰ Brewing at this scale, it is easy to see why brewers in these states eagerly look regionally to sell beer.

Milwaukee beer reached towns across Colorado. Like Denver beer, Milwaukee brewers targeted Pueblo, where one liquor wholesaler sold eighty-eight barrels of Val Blatz's Milwaukee beer in one day.²⁸¹ Pueblo was not the only destination for outside beer. Weinberg and Co., a wholesale liquor dealer in Lake City advertised Blatz' beer.²⁸² Phillip Best Brewing Company had an agent in Colorado City ready to "obtain the Milwaukee beer by the car-load."²⁸³ Two points can be drawn from this. First, Midwestern brewers contracted agents in towns across Colorado to import their beer. Second, railroads by 1880 connected Milwaukee, with a metropolitan area reaching half a million people, to the not quite four hundred inhabitants of Colorado City.²⁸⁴ The diffusion of Milwaukee beer was remarkable and difficult for many towns to resist. Similarly, St. Louis beer flooded Colorado. Colorado Springs' *Colorado Mountaineer* reported that demand for St. Louis beers overwhelmed the supply.²⁸⁵

Examining Milwaukee and St. Louis points to the numerous breweries outside of Colorado that sought to capture the growing state's beer market. Although small town brewers encouraged local consumption, overwhelmingly industrial brewers shipped beer in and devastated these companies. These were simply two of the largest sources of beer, many other eastern cities delivered beer to Colorado. Denver possessed a sufficiently robust industry to ward off outside beer. Jones and Co. were wholesale liquor dealers in Denver, and in 1878 received a rail car of Phillip Best Company's beer from Milwaukee. Despite the quantities of beer a rail car

²⁸⁰ *One Hundred Years of Brewing*, 609.

²⁸¹ *Colorado Daily Chieftain*, May 1, 1878. Page 4, column 2.

²⁸² *Silver World*, August 11, 1877. Page 4, column 6.

²⁸³ *Colorado Mountaineer*, August 8, 1877. Page 2, column 6.

²⁸⁴ U.S. Census Bureau, *Statistics of the Population of the United States June 1, 1880*, 113, 370.

²⁸⁵ "St. Louis Beer," *Colorado Mountaineer*, October 24, 1877. Page 3, column 4.

holds, and the award winning beer within, Jones and Co. were “the only authorized agents for both northern Colorado and Wyoming.”²⁸⁶ Of course this is one of many breweries in Milwaukee, but it is the only Milwaukee beer advertised by name or by city. Nearby Coors was of greater concern to Denver brewers, and the established density of large breweries perhaps steered outside brewers from targeting Denver.

Post 1876, the beer industry in Denver developed by leaps and bounds. Production grew tremendously even as the number of breweries shrank. A handful of breweries supplied more beer every year to a growing population. The progression of breweries from the 1860s to the 1870s is remarkable and was connected to the growth of the city. Denver breweries only survived because of railroad connections that brought ingredients, labor, and consumers from across the nation. The city wanted the railroads for the same reasons, applied across industries. The sheer quantity of advertisements by brewers and halls selling beer attests to the growth of the industry, its wide distribution, and high production.

This year marks the emergence of Colorado into the Union as a state. It also marks the industrial maturation of Denver brewers. Born out of an ethnic German desire for beer, Denver brewers operated large and small businesses from the early Gold Rush days, through the Civil War, as Colorado became a territory then a state, and continued on as Temperance gained strength in Colorado. Through these years, they faced spatial and geographic obstacles in procuring raw materials, attracting labor and enlarging their facilities, and distributing their products across Denver and other Colorado towns. By condensing space and either situating their breweries close to resources or hiring or developing infrastructure to bring materials from the hinterland to them, successful breweries transitioned from single-operated businesses to factories

²⁸⁶ *Daily Denver Tribune*, August 3, 1878. Page 4, column 2.

with a professional, skilled workforce. Not only did distance matter, but also how brewers resolved issues of distance.

In all, this thesis connects to other urban brewery histories. Brian Albert's recent dissertation "Beer to Stay: Brewed Culture, Ethnicity, and the Market Revolution" examined German immigration's impact on the development on Chicago and Cincinnati through breweries.²⁸⁷ Chicago in particular has recognized the connection between breweries and urban development. The Chicago Brewseum examines the power beer has played in the cultural, economic, and communal history of the city.²⁸⁸ Other cities and states are beginning to recognize the role beer and brewing has had in their development.

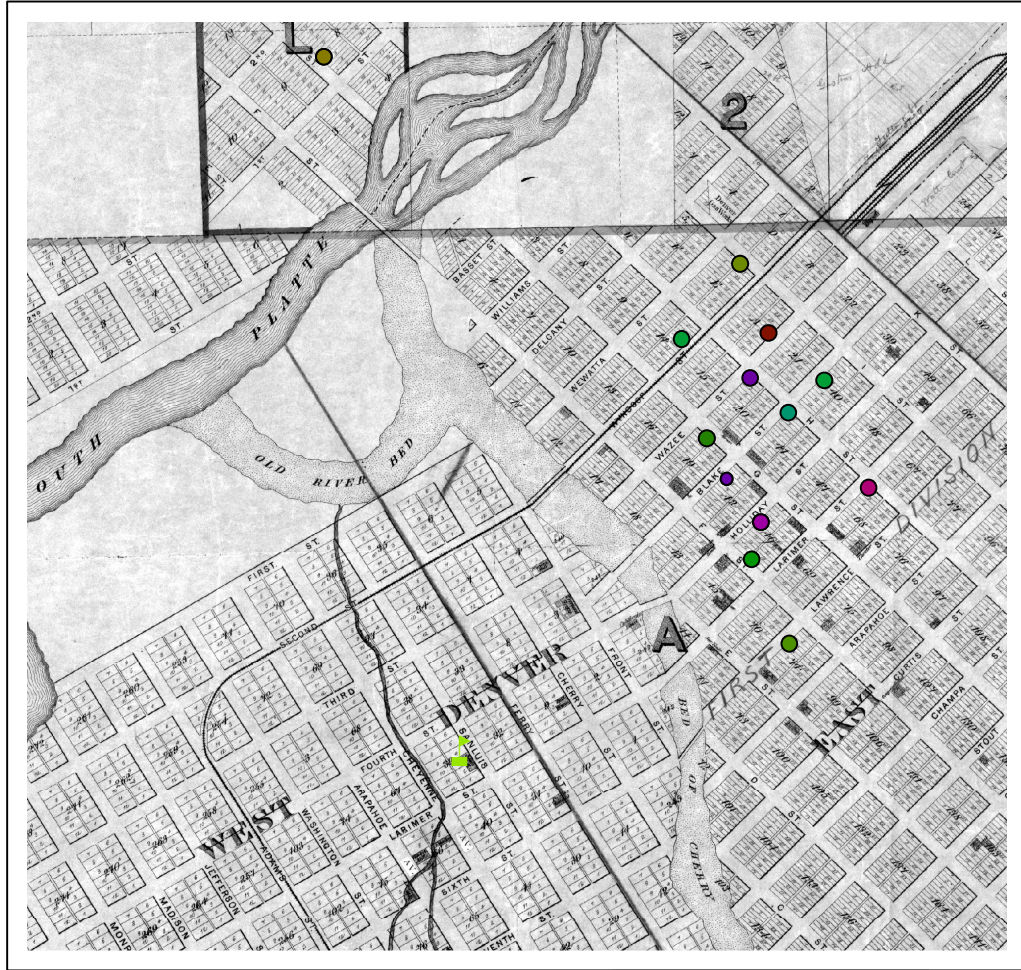
The growth of Denver breweries from 1859 to 1876 applies beyond the confines of the city and this study. Beer history has emerged as a prominent tool for public history to engage the public. In many ways, beer is a living historical artifact that people enjoy today as they have for generations. In a historical study of beer, many subsequent issues are brought forth. Immigration dramatically changed American brewery's ethnic identity, number, and economic prominence. The same can be said of many iterations of immigrants, not simply Germans in the nineteenth century. Spatial analysis provides historians with a new set of data with which to engage historical questions. This study has attempted to present beer and breweries as viable historical subjects and the efficacy of ArcGIS in historical research.

²⁸⁷ Brian Alberts, "Beer to Stay: Brewed Culture, Ethnicity, and the Market Revolution," (Ph.D. diss. Purdue University), 2018.

²⁸⁸ "Mission," The Chicago Brewseum, accessed February 27, 2019.
<http://www.chicagobrewseum.org/about-us>.

Maps

Map 1: Denver Breweries, 1859-1876






Legend

- | | | | |
|--|------------------------|--|------------------------|
| | Phillip Zang | | M.J. Gotto |
| | Richards J.W._Co | | Morrison Smith_Co. |
| | Roberts_Griffith | | One Horse Brewery |
| | Rocky Mountain Brewery | | Denver Ale Brewing Co. |
| | Hugh Goodfellow | | Colorado Brewery |
| | James Pemberton_CO | | City Brewery |
| | Leonhard Summer | | Alex Davidson |
| | Levi Whipple_Co | | Aull_Stumpf |
| | Lyman Parkhurst | | B.B. Styles_Co |
| | | | Barber_Castle |
| | | | Barker, W.J. |

Map 2: Coopers, Foundries, and Grain Stores



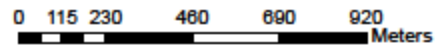
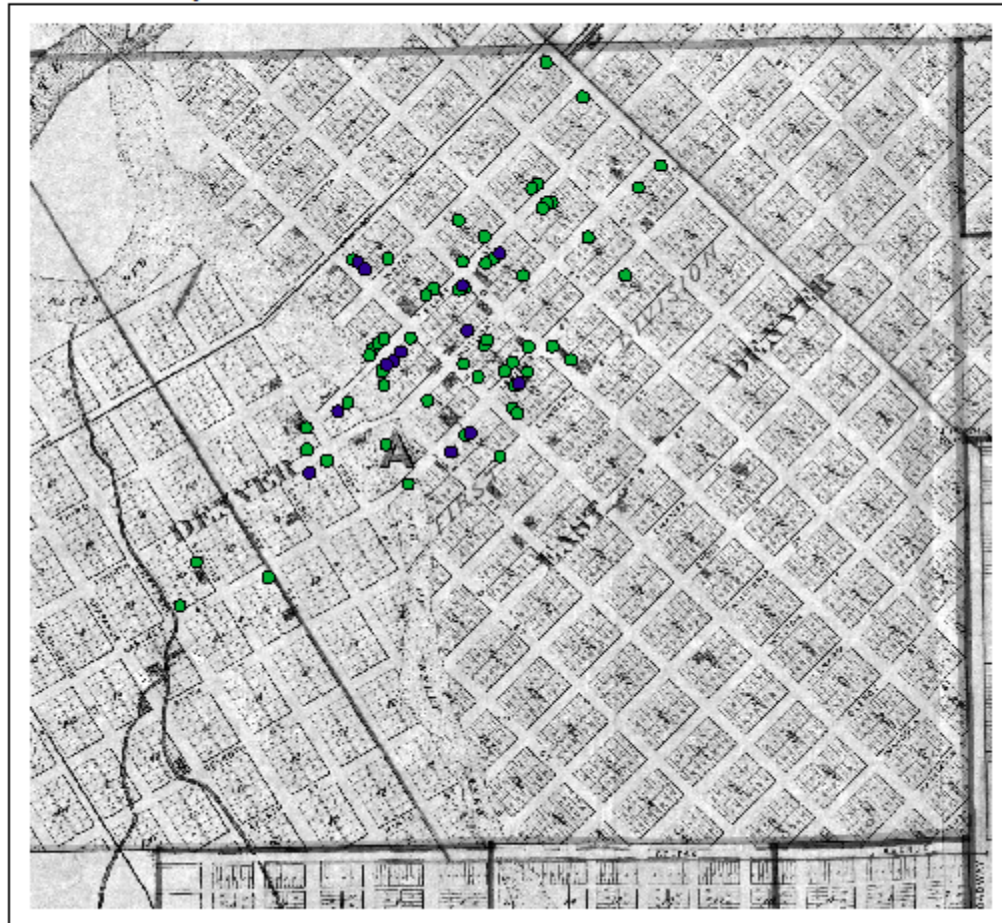
Legend

-  Grain stores
-  Foundries, 1871-1876
-  Coopers 1873-75

0 175 350 700 Meters



Map 3: Denver Saloons, 1866 and 1873

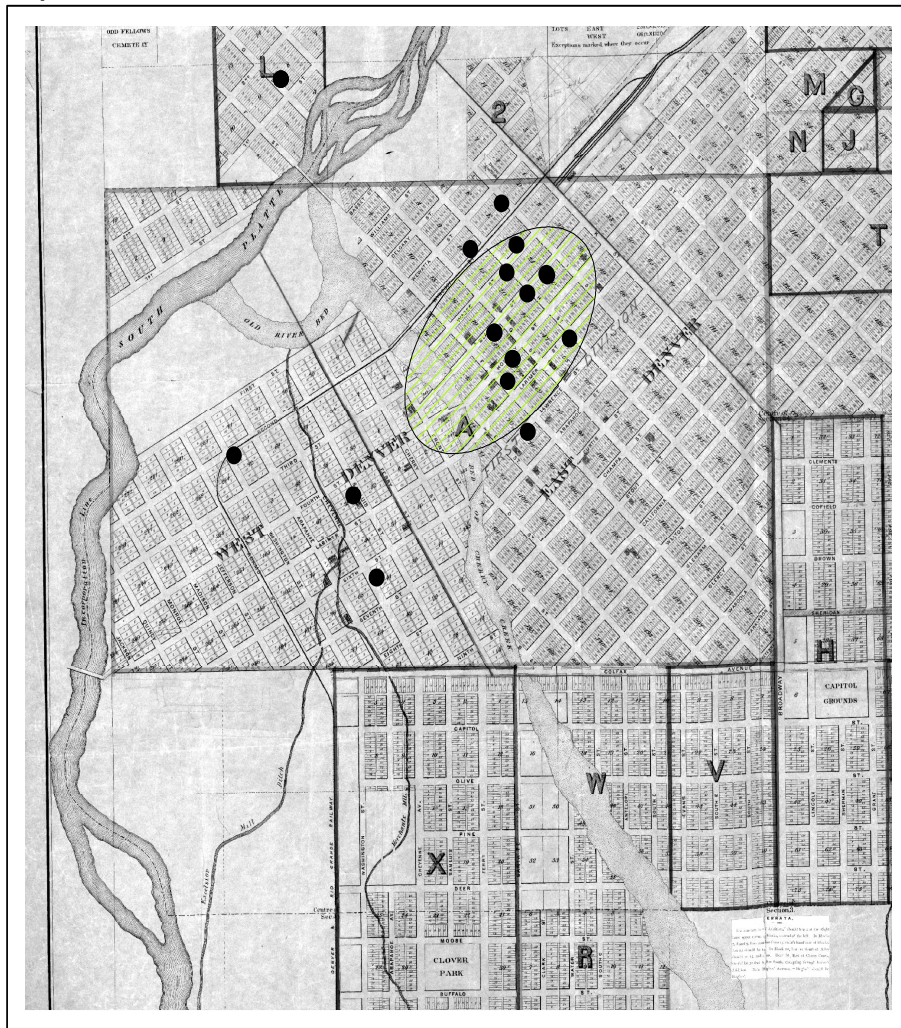


Legend

- 1866 Saloon Center
- 1873 Saloon Center
- Saloons 1866
- Saloons 1873

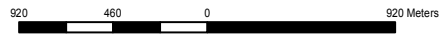
Distance between mean centers = 170 m

Map 4: Brewers with 1873 Saloons 1st Standard Deviation

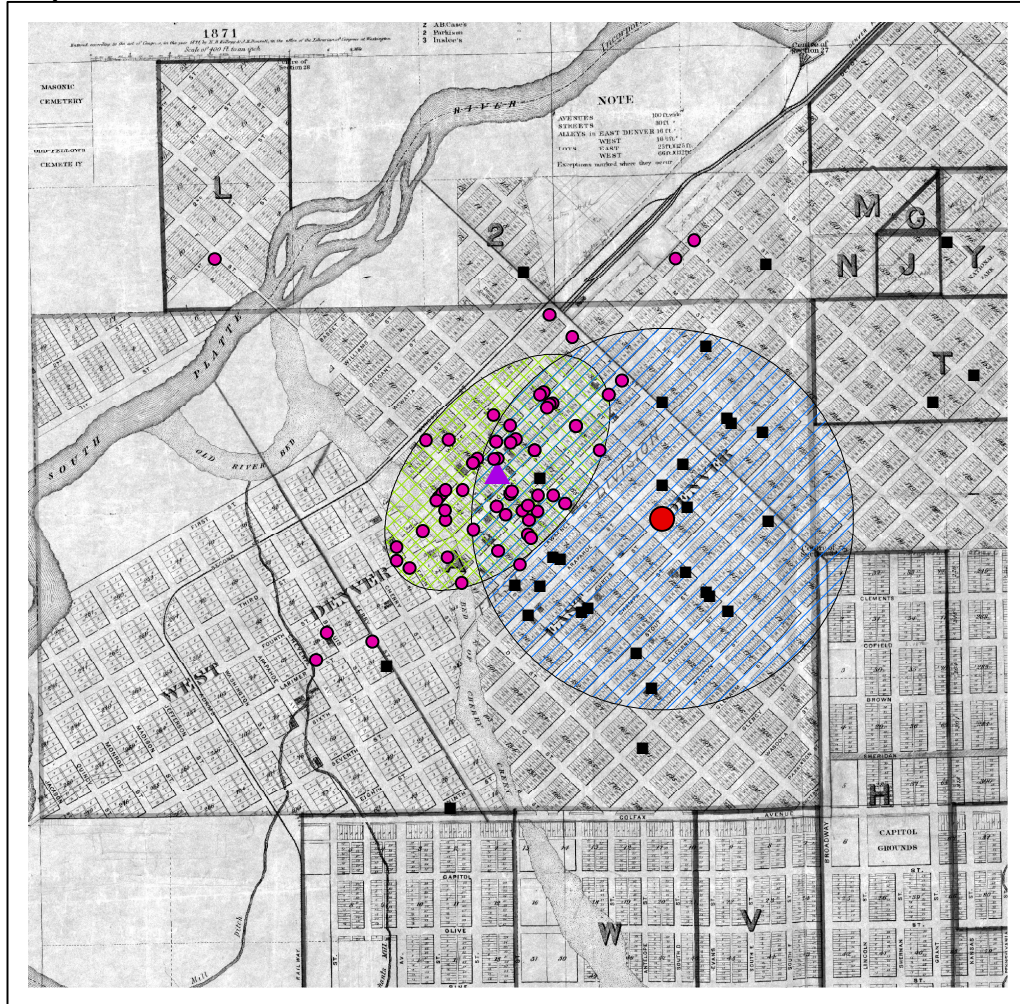


Legend

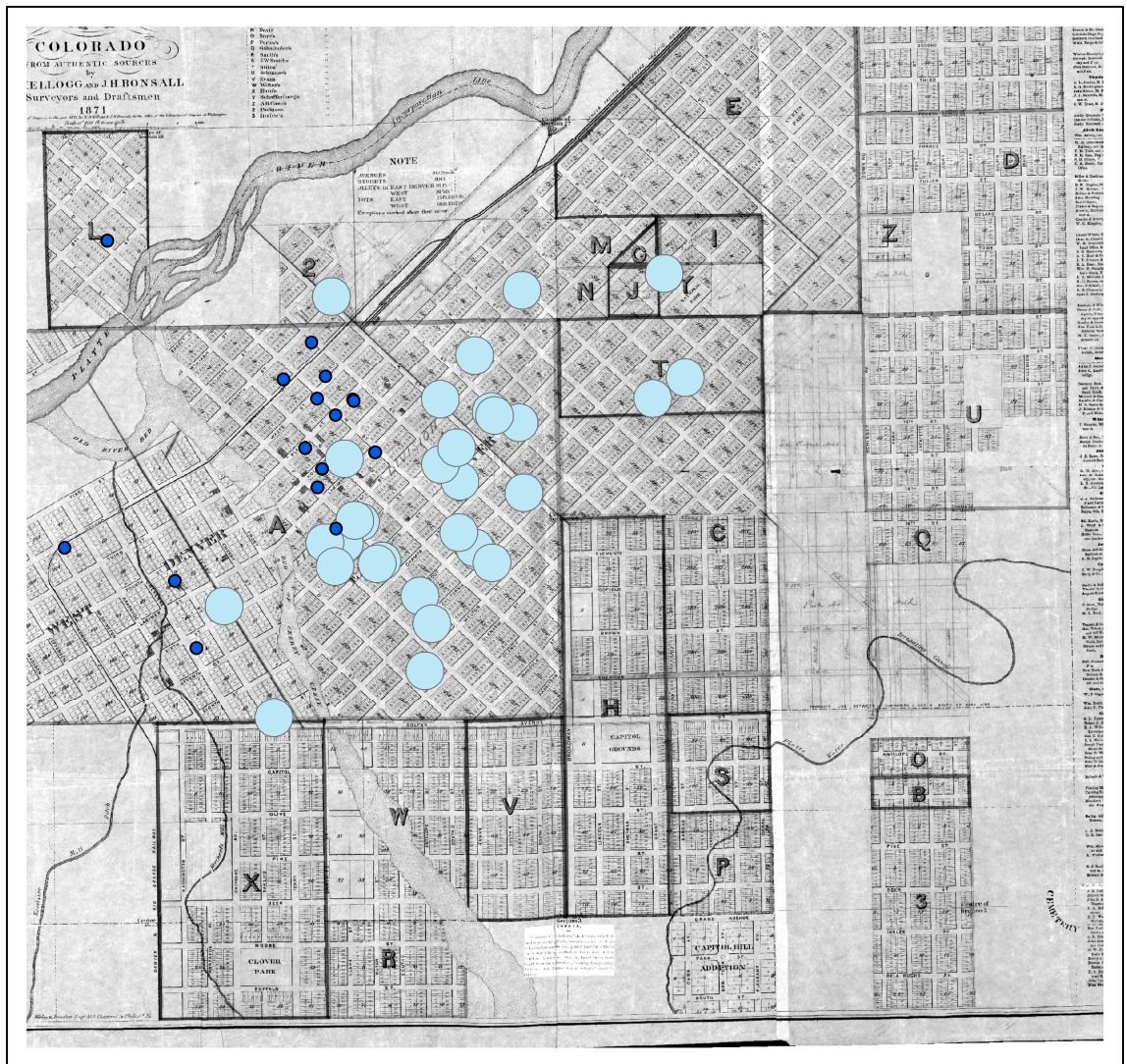
- Brewers
- ▨ 1873 Saloons 1st Standard Deviation



Map 5: Church and Saloon within 1st Standard Deviations



Map 6: Brewers within Eyesight of Churches



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