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The Evolution of Coal Company Towns in Kentucky

Supervisor: Prof. Silvia Piovan

Nasrin Saadati

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ABSTRACT

This thesis investigates the history and demographic development of coal company towns in Kentucky relative to a local and global context. This project defines coal company towns in Kentucky and takes a comprehensive presence of coal company towns census in order to cast light on the history and demographic development of coal company towns in Kentucky. This research employs both qualitative and quantitative methods, using statistical analysis and Geographic Information Systems (GIS) to offer a spatial analysis approach to map and analyze the population development of these evolving towns. The study of coal company towns in Kentucky confirms that some of these towns have experienced considerable growth, and then have experienced sharp declines as the result of the coal industry's downturn. This study looks at these situations in detail, but it also brings to light some interesting cases of towns in which they have demonstrated resilience and adaptation to survive in the face of a declining population. This research highlights the life cycle stages of coal company towns and articulates the importance of understanding the coal company town's changing times in development and population. The thesis's findings hold significance for a broader area that deals with industrial histories and could provide a framework to perceive and conduct research about community development and population transformation in post-industrial geographies.

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1 INTRODUCTION

Coal exploitation goes back to ancient times and has had a long history. People started using it long ago as far back as early civilizations. They did not do very much with it and just used it for basic things, such as heating and metalworking. As early as 1000 BC, China was possibly utilizing coal. Rome use coal in Britain when they controlled that area, likely again just for heating and forging, or early metal work. This is an example of coal being used early on. Coal was not an indispensable product until it was utilized for the important Industrial Revolution (Freese, 2006).

The most historically notable change in society was the introduction and subsequent expansion of coal, which was most noticeably located in Western Europe. Coal entered Britain and to this, one adds the steam engine, a world-historical contribution to the process of industrialization. Here coal was significant for a second reason. Prior to the use of coal, factories were required to be located next to water as the earlier models of labor were dependent upon either wind or waterpower. As coal was combined with steam, factories could be situated within cities and urban places. This initiated an accelerated rate of economic growth, and the pace of urbanization, as hundreds of thousands of people left their agricultural farms to work in factories (Freese, 2006).

Coal was indispensable for the economic growth of Britain, as it was not only needed for many new industries, but was integral to sustaining existing industries, particularly railways and manufacturing. During this period, it saw a very rapid development in the railway network, the railway network had approximately more than three billion journeys of freight and passengers yearly. In this era, the steel market saw another huge growth spurt due to its relevance to the expansion of infrastructure, and coal was needed for its meaningful production in quantity (Freese, 2006).

The future of coal organization maintains that coal's abilities still make it a vital engine for global industrialization, building a foundation for economic and social development. Coal has rightfully acquired its position through being abundant, reliable, and cheap; it has contributed jobs and leading revenue for states and Nations. If one considers mining communities, the direct impacts are a measure of community development and infrastructure, along with the public services required by communities. Coal also will continue, for the near future, to be a relatively low-cost, appreciated contributor and steady component of the energy mix for many baseload uses, contributes to ensuring energy security, and offers an fundamental and secure source of power during events such as natural disasters or loss-of-power events. In this process of changing the world toward a clean and sustainable

future, the role of coal is shifting too, providing a platform for further industrialization as developing economies increase their share in the energy mix. Reliability and affordability mean it serves the needs uniquely of the world's growing population. (https://www.futurecoal.org/).

Just as the transformations were extensive, there were also changes at the level of society. The initiatory rise in industrial activity led to a high-speed urbanization as people fled the country for the city, forming a new working class and changing work and social relations. We can talk about Manchester and Birmingham as examples of industrial capital cities, which were at the height of the so-called progress of that era and the social difficulty in that scenario (Freese, 2006).

In this introduction, we want to set the stage for understanding the role that coal played in crafting organized landscapes of the economy in Kentucky coal company towns from formation, through development, and eventual decline within the larger narrative of industrialization and its social-economic consequences.

1.1 Goals

The research attempts to contextualize an in-depth analysis of Kentucky coal company towns considering local and global processes. In this regard, the objectives were intended to serve the purpose of providing the reader with a sectioned evolution of coal company towns, the socio-economic, and they developed throughout history, whereas each goal defined a different element of the analysis:

1. **Review of Terminology**

   The first objective of the research is to define the terms related to coal company towns and establish a clear and transparent review of terminology. In doing so, it will be necessary to establish definitions of the terms company towns, coal towns, and coal company towns. These definitions shall form the necessary part of the analysis and contextualization of the coal company town models and the living conditions that the coal company towns produce. This gives us our words meaning, as historical and economic grounding outside of the discourses has already been obtained, it allows access and understanding to the coal company town.

2. **Review of Coal Company Towns in the international context**

   The second goal is to connect Kentucky's coal towns and coal company towns to other world examples. To support this relation, the use of global studies of towns in places specifically in countries such as China and Russia that are similarly global examples and studies of the power that is produced will be examined separately, and simply grouped into a category of economic

models of the existence of towns, living condition of communities by industrial epoch, labor movement of towns, and the ability for government to intervene. The goal is to show that although each community has its own respective history and trajectories, each is also part of a broader world relation, and a larger examination of patterns will be looked for outside of Kentucky. Being in a larger frame also allows analyzing in the frame of advancing for the analysis and interpretation of a following study where this can also help contextualize the larger world, where life exists.

3. **Census of Coal Company Towns in Kentucky**

   The third objective is to generate a comprehensive census of coal company towns across Kentucky, with the intention to graphically depict these towns and their locations, record their development, evolution from development to decline, and gather specific demographic information for all coal company towns. The census will provide a basis for a new understanding of the historical significance of these towns but will also provide context for their contemporary status and continuing economic relevance to this day. This study is not meant to be its own purpose or goal, rather the study is designed to provide the factual basis for analysis in the other study sections.

4. **Analysis of the Evolution of Coal Company Towns**

   This last objective strives to explore the history of development and evolution regarding coal company towns in Kentucky, particularly concerning the boom-and-bust cycle in the coal industry. The research will try to track growth, peak, and fall over time by investigating major demographic changes. This objective sets the lifecycle of these towns within the broader industrial cycles of coal mining through an understanding of population trends. It thus attempts to offer insight into how those towns indeed adapted (or failed to adapt) to changes in the coal industry while at the same time serving to highlight the long-term effect of such transitions on local communities.

To summarize, once the study objectives are complete, the deliverable product of study is a scholarly examination of the factual, comparative, and historical narrative of coal company towns: providing a new view of the historical narrative, and an understanding of the role of coal company towns in Kentucky.

This thesis is an integral component of an extensive research project on coal company towns, which was launched in 2018 by Professors S.E. Piovan (University of Padova) and M.E. Hodgson (University of South Carolina).

1.2 Terminology

1.2.1 Company Town

Company town, a term coined in the United States at the turn of the century, in which this urban form spread more than elsewhere, indicates a town-owned, designed, maintained, and managed by one company, state-owned or private. Company towns are meant to be distinguished from other industrial or mining urban areas by their exclusive ownership. Even when dominated by a single major industry, industrial cities such as Detroit or Manchester could not be properly described as company towns because the presence of several competing employer firms undermined the power of any one firm to impose its individual will on the urban space. Monopoly ownership of a company town, such as Pullman, Illinois or Lakewood, California allows the sole proprietor to exert such control (Ehsani, 2003).

Of the two major objectives of the establishment of such company towns, the one of housing employees was surely more important. The company had to impress on its employees the virtue of good housing and pleasant living conditions, attract them for the reason to join the company; and better up their regard for the company so that they stay for an extended period. It was the company that had to make sure that the workers lived a decent life because with the progress of the people in the domestic sense, the progress of the community was assured. The second purpose of creating such urban spaces so that they could be applied to training, monitoring, and supervising employees and in short, reinforcement of a company labor force was less amenable to informal processes (Ehsani, 2003).

The presence and power of the first company towns were very much in the practically New England textile industry, reflecting one of the dominant sectors of the world economy at the time. Many of the company towns springing up during the late 1800s were examples of industrial towns, built near natural resources. Steel manufacturing required coal and that steel was required to build the railroads which could then connect the continent. Amongst this trio, during the period between 1850 and 1890, the American economy centered; it was during this time that the consumption of coal increased over successive decades, leading to the establishment and building of several company towns. (Singh, 2023).

1.2.2 Coal Town

The term coal town has a broad meaning than many initially suppose. Within coal towns, coal mining is the dominant industry. It can be a bit misleading: not all coal towns started as company

towns, implemented by a company. It may have been a preexisting settlement before the coal mine, or settlers may have come and settled the town of their own volition. Even though the coal mine is the number one employer, coal towns generally have a variety of independent businesses. Coal towns tend to be more independent than the company towns, which were widely regulated.

1.2.3 Coal Company Town

Coal company towns presented a particular type of community. The reason for their existence was the extraction of one resource: coal. The built environment, which heavily impacted on the social and economic lives of the residents, were designed and controlled by coal companies. Each coal company town had its own style of life despite sharing a same framework (housing that belonged to the corporation, stores that accepted corporate scrip as payment, and alignment with train tracks) (https://history.as.uky.edu/website-documents-kentucky-coal-company-towns).

A coal company town is defined as that kind of town which was singly dominated by one coal company owning it and operating it. These towns are found in coal mine regions and were well spread in the late 19th and early 20th century, especially within the United States. The company provided more than work for the miners. It provided housing, medical care, schools, and recreational activities for workers and their families. The company deducted the costs of these things from the miners' wages. During the early twentieth century a fundamental institution within the mine labor market was the coal company town. Where coal needed to be mined, this organization was the one that brought labor and money together. Property rights guaranteed these firms would be monopolistically competitive with other firms who supplied goods and services. Civil authority was also ceded to these firms; they hired police, delivered mail, and to a certain extent dispensed justice (Boyd, 1993).

Coal company towns served as both a hub for welfare and a source of economic progress throughout the Industrial Revolution. At the time, massive energy generation was demanded on account of the heavy application of steam engine technology on various industrial activities. The only prevalent forms of energy sources in the time were coal and other on non-renewable natural resource extraction. However, a number of coal mining communities around the globe experienced the complete halt of their mineral production in light of changes on the global energy market, through the Clean and low-carbon policies, and the growth of industrial technology. The cities also had to deal with issues related to the economy, society, and environment, such as declining tax revenues, joblessness, emigration, and environmental deterioration (Armis, 2019).

The days of enormous profits were also coming slowly to an end. The mine closures have become a global concern since the 1990s. Mainly, there are three drivers in downsizing or closure in the coal

industry: coal mine mechanization, clean energy legislation, and the global energy market. The first driver is that the demand for and price of commodities that are extracted are determined through turbulent global markets. Second, with the entrance of new policy efforts bringing in clean, low-carbon energy, regional and local air pollution has ceased. The final factor relates to how changes in technologies in coal extraction processes and technologies themselves have led to job loss within mines. While this did occur under differing conditions, the impacts of the closure of mines have been very similar in such towns. Any time mining leaves a location, it is always accompanied by adverse economic, social, and ecological impacts. The most obvious implications are economic activity reduction as well as the loss of skills and knowledge. Skilled workers having mining experience migrate to newly developed wealthy cities for better prospects. Mining towns are cut off from the global information flow while mining enterprises create networks of knowledge around the globe. After the mines have dried up and operations have folded up, mining companies can easily take away their capital to new and more promising sites in the company's network. This leaves coal company towns with the social problems of high unemployment rates, low levels of education, decreased purchasing power, and a lowered standard of living (Armis, 2019).

1.3 Literature review

Company towns could be one of the most robust examples of economic, social, and cultural convergence. Company towns are a site established by a singular business entity-a single corporation-most often developed around mining or mill or factory industrial sites-develops out of the dynamic economic, communal, social, and cultural relationship between business and town over time. Within many studies on company towns, they are understood to have differential effects, not comparable in nature, and this literature review focuses first on a global perspective, moves towards the broader context of company towns in the United States, and then to the example of Kentucky Company Towns that epitomize the unique typologies of company towns and their collective impacts on communities. Each of the sections outlines key themes that, one way or another, press towards an understanding of what company towns are, have been, and could be.

Gibson (1991) discusses how company towns in Central Queensland, Australia combined with the experience of other international countries. Gibson stressed that company towns represent the extreme case of corporate dominance over labor markets, occurring worldwide along with labor dependence, combined with significant constraints on economic development. His research underlines a general trend, which is that isolated communities such as company towns tend to present problems in terms of job availability and have heavy socio-economic control (Gibson, 1991).

Van Zee (2012) also discusses Hellerau-bei-Dresden, Germany, created by Schmidt in a marriage of the company town and the model reform settlement. In Hellerau, Schmidt was tasked with refining the German aesthetic with modern-life improvements in a vision of spatial engineering that promoted the social engineering needed to achieve social harmony. Hellerau is the case of an experimental location where the reform of architecture and society tried to solve the "social question" through spatial engineering (Borges, 2012).

Ball has examined the relation of power to space in this colonial Angolan company town and the surrounding sugar-producing estate. The aim of the Cassequel Sugar Company was to reproduce in Catumbela all the forms and sensibilities of a Portuguese town while ensuring inflexible rules of social and racial segregation. For its white employees and their families, Catumbela was a model company town. African workers, in their turn, lived under much worse conditions and were further subjugated to an onerous forced labor regime, in force with few changes until independence in 1961. As the colonial system began clearly to be in crisis, particularly on the contours of the Second World War and changing international political conditions that were undercutting its social and economic premise in the 1950s, the Portuguese authorities finally began to take the first hesitant steps toward labor and welfare reforms, and Cassequel did the same. Changes in labor conditions, sanitation, and social services were extended generously to the built environment in Catumbela. In this way, these reforms extended for the first time some benefits of the model company town to its African workers; the experiment ended with the independence of Angola in 1975 and the departure of most Cassequel's white residents (Borges, 2012).

Torres and Borges examine labor-capital relations in the company towns of the Patagonian oil fields. The majority of the workers in those company towns initiated by the Argentine state, and by various private enterprises situated close to the port town of Comodoro Rivadavia, were international as well as internal migrants. The article by Torres and Borges explores how class and ethnic solidarities, company management, and the Argentine state encouraged accommodation or resistance among oil workers. More specifically, they focus on the active labor organizations of oil workers and their activism within the state-run company town during a series of strikes between 1917 and the 1930s (Borges, 2012).

The impact of the racial difference in Seatonville and Ladd, Illinois United States, concerning occupation as well as social structures are noted by Bruchman, 2004. Bruchman research acknowledged a plurality of ethnic origins reinforce occupation structures, social incorporation, and unity inside these relations. A position of occupation discrimination is observed among ethnic groups inside these coal towns (Bruchman, 2004).

Shifflett (1995) does quite heavily define in economic and social terms these communities' company towns in his book "Coal Towns: Life, Work, and Culture in Company Towns of Southern Appalachia". Shifflett disputes the total company domination theory and asserts that residents had some agency concerning the cultural and social aspects of their lives although, often harsh economic conditions existed. Residents found a way to create community and their sense of cultural identity outside, though in some ways against, corporate created and dominated space in a quite diverse manner: social clubs, churches, and other engagement forms serving as a counterbalance against corporate space (Shifflett, 1995).

Boyd (1993) researched the microeconomics of coal towns in the US and discusses how those towns were built around monopolistic principles, making a captive labor market for the coal company. The coal company served as the monopsonist, as well as a monopolist in the goods and services used by the workers in those captive coal towns. The coal company found that wages and other prices were higher in the captive towns than they were in "freer" towns. Therein, the coal company established a sequence of economic interests to serve their interests. Workers were captive since they had an economic reliance tied to these towns and generally had little ability to move. The paper also evaluates the extent to which coal companies exercised dominion over life in these towns whereby the staging of police forces and criminal justice matters are owned by the coal companies themselves (Boyd, 1993).

"Coal Dust on Your Feet" by MacGaffey centers on the impact of deindustrialization on former mining towns and cities: the enduring social and economic impact and possible regeneration. It is therefore suggested that those places that still have a relationship with their past, and have begun to revitalize social capital, can create and seek new economic and other opportunities from this starting point. Further, takes an optimistic stance on the possibilities for post-industrial adaptation and resilience (MacGaffey, 2013).

In "The Company Town: The Industrial Edens and Satanic Mills That Shaped the American Economy", Green (2010) looks at the two contrasting features that are norm in American company towns. Green looks at the tensions that existed in such industrial towns as Pullman, Illinois, where the facilities and residential accommodation were idealistic in nature, but the company town successfully retained authority and suppression and always had a potential for labor conflict. By indicating that the residents living in a company town like Butte, Montana were nowhere near as well looked after, it becomes evident that a corporation was more interested in profit than prosperity or the even distribution of wealth, and the people from Butte were smart to escape corporate ownership.

Green has argued that the physical inconsistency left behind is a reminder that the American economic landscape has been molded by this inconsistency, one that still looms today (Green, 2010).

Perry (2012), describes Wheelwright, Kentucky as a region that started as a tiny mining camp, by the 1930s grew into a bustling city, majorly because of the Inland Steel Company. Where the topic of Perry's research is interesting, it's how many of the residents continue to remember the time when they had economic prosperity and a vibrant community versus how it has declined as of late both economically and socially. Residents continued to emphasize and reflect on the past, which brought up a discussion about the relationship between corporate investment and community identity in the context of the study (Borges, 2012).

Wright (2023) presents a history of Fleming-Neon, Kentucky, epitomizing the development and intrigues that surround the naming of the town. His research has diverged from the oral history tradition into a documented narrative that include sports records and historical facts recording interviews. Wright's commitment to facts in presenting the past of Fleming-Neon, and particularly the original name Chip, points out the importance of archival investigation over local legend as one shows how community identities are very closely tied to their historical narratives (Wright, 2023).

Blevins (2008) spoke about the evolution of a scattered farm community into a coal-mining epicenter at Van Lear, Kentucky, due to the entre-preneurial spirit of John C.C. Mayo. Blevins narrated how Mayo was able to perceive that economic opportunity, for which this region was full of bituminous coal, acted as a catalyst for phenomenal socio-economic change in this region. This indeed exemplifies individual vision and corporate interests in reshaping countryside sceneries into industrial centers reflecting broader economic and cultural changes (Blevins, 2008).

This literature review therefore aims at critically assessing the company town concept and its economic repercussions from a multinational and comparative perspective. The company town can be viewed as a global constant, with a unique articulation of developing economic dependency from country to country. The literature review indicates that there are various ways of organizing a company town conception, using USA company towns as an example, the main aim is to maximize labor and the work-life of its residents regarding the company town economy and housing.

The literature review gap is that there is no uniform study or inventory in GIS form of Kentucky company towns. This places limitations on the opportunity for comprehensive spatial and demographic analyses that can assess the development and decline of company towns in Kentucky over time. Revealing the spatial and demographic features of company towns finally opens an

opportunity that can enable research on not only site-based changes but also the wider implications of these changes over time, or the decline in company towns.

2 GLOBAL PERSPECTIVES

2.1 Company Towns

It is not just coal company towns that are company towns, but instead, company towns can exist for a variety of industrial purposes, including steel, lumber, textiles, and manufacturing as example industries. These company towns were created and operated by one company to house the workers and their families. Often, providing infrastructure, utilities, services, and entertainment. This model especially became prevalent during the late 19th and early 20th centuries, and often occurred in new or remote settings where government regulated services were not present.

Two key considerations were highlighted when choosing examples of company towns for this thesis. First, the goal of geographical variety was to show how widely the business town concept was used in other industries and continents. Second, sample cases were selected due to the limited scope of comprehensive studies available in web literature of thorough investigations that encompass several locations. This method closes the research gap and emphasizes the need for larger scale investigations on the social and economic effects of company towns around the world. Every kind of business, regardless of industry, nation, or continent, can relate to the idea of the company town phenomena. It is such a global concept and has existed in various forms all over the world, however, some examples serve to illustrate this:

- **U.K.:** Bournville's model village, designed by George Cadbury in the late 19th century close to Birmingham, UK, is one of the most famous examples of a company town embracing social welfare and industrial efficiency. It was designed to give his chocolate factory staff a better way of life, with open-plan houses, large areas of green space, and great community amenities; it drew inspiration directly from the Garden City Movement. The village not only changed the workers' lives but set a new benchmark, intimated worker welfare into the business, and was taken into the 20th century (Bailey, 2006).

- **Angola:** Under Portuguese colonial rule, Catumbela Angola transformed from a historic slave-trading port into a sugar-producing company town. It was there that investing in such diverse features of urban and industrial planning, the Cassequel Sugar Company of Portuguese operation involved the standard building stock painted in pink color and better infrastructure purposefully built to house and attract a skilled work force. The development is, therefore, a symptom of economic regional and colonial process and the social construction of colonial

company towns that tried to integrate the native economy and work participation into the global economy (Borges, 2012).

- **Iran:** Masjed-Soleyman is important to the history of the oil industry of Iran, because it was among the first samples in the Middle East with oil extraction and production. The city had initially been laid out by the Anglo-Iranian Oil Company as a company town, and its development was inextricably linked to the fortunes of the oil industry in Iran. Masjed-Soleyman was for a time a bustling urban space and a statement to the optimism of industrial patriotism during the time, since there was coming into the oil sector a variegated group of workers. In the mid-20th century, Masjed-Soleyman started to decline with the eclipse of oil in the late 1960s and the physical closure of the oil facilities in 1980-1981. This plan for the military to take over the city was one where military population would be established and, therefore, an urban vitality sustained. The city changed from an industrial, class-based community to one that is based on ethnicity and tribe. Today, Masjed-Soleyman presents itself as a multi-stranded thing of the industrial past, imbued with its traditional tribal culture. One observes such transition to the greater cultural identity through the streets of Masjed-Soleyman, where tribal dress is of more importance, and settlements are now to be found in places where hitherto companies regulated. Masjed-Soleyman was the embodiment of mid-20th-century modernity, represented by industry. These days, it is fraught with social problems such as unemployment and other detentions of an oil past. The story of the city thus epitomizes broader shifts in areas of finite natural resources with limited focus on the logistics required when industrial gears dissuade so that a region may not realize an economic or population decline (Ehsani, 2003).

- **Argentina:** These company towns, peculiar to the oil industry that developed in Patagonia, Argentina, represented a signature of all those economic and social changes which were in play during the first decades of the 20th century. Some of them peopled a diverse workforce made up of local and immigrant laborers; their various ethnic and class influences fueled important movements of labor. As these oil fields matured and production declined, many of these towns started to develop economic handicaps and grew beyond their industrial roots, incorporating more thoroughly into regional cultural and economic life-a development from purely industrial foundations to diversified local economies (Borges, 2012).

- **Canada:** A once-thriving copper mining community in British Columbia, Canada, Britannia Beach serves as a window to the archetypal company town filled with its mine at its center. The combined economic and social results of mining and mine stoppages, particularly in 1958 and 1964, are the foundation for the initiative in Britannia Beach. These accounts are bound

together by historical events that seem an afterthought of the thematic of 'unity, and resilience' as testimony to the labor relations and shifts toward community identity and unity. Over time, Britannia Beach has adapted to a post-mining economy by converting its economy into one of heritage and tourism. Finally, Britannia Beach is a fact that serves the best example of a community readjusting its stance from the 'industrial age' perspective towards utilizing heritage and the environment to create a sustainable future (Borges, 2012).

- **Norway:** Årdal in Norway is located on Sognefjord, one of the most exquisite fjords. The company town is an example of an industry town and an aluminum-based company town. Apparently, Årdal was made up of an agricultural and fishing community first; with the development of hydroelectric power, it got converted into a community with an aluminum smelter. The Årdal case underwent intensive development of labor and industrialization during the Second World War German occupation, during the liberal democracy era of the post-war period. Unlike the classical company towns, which were characterized by tense class relations, Årdal maintained a community in consensus. Though Årdal struggled to cope with the fluoride release and environmental issues attached to smelting aluminum brought in town and this area, reducing the economic value of the produced agriculture in the locality and placing public health at risk. The Årdal example deals with the magnitudes of industrial development and sustainability for the balance within local social welfare and broader juridical and welfare framework in Norway (Borges, 2012).

- **South Korea:** Ulsan is a company town in South Korea, which has gained a reputation for being a space completely dominated by Hyundai, an industrial conglomerate, specializing mainly in shipbuilding and automobiles. From a small fishing village, the transformation of Ulsan as an industrial center was hastened by the development strategies outlined in the 1960s and 1970s in South Korea. Today, the city is famous for its heavy industrial contribution towards Korea's national economy. A case like Ulsan portrays a company town, where every economic activity is inter-related to the growth of the company driving them (Yoo, 2014).

These examples show the broad notion of the company town and its varied deployment, responding to industrial demands as well as the specific cultural context in which the company town was created.

2.1.1 Economic Dependency and Industrial Evolution

Catumbela of Angola, for example, means complete economic dependency on colonial sugar production. Masjed-Soleyman of Iran and Patagonia of Argentina are examples representing economic peripherality due to their dependency on depletable oil. Now Britannia Beach moved

towards the direction of tourism and sustainability, and Årdal in Norway did it in an attempt to take their economies away from mining and smelting. While Ulsan in South Korea remains affluent, the continued industrial development from Hyundai has transformed it from a company town to an industrial giant.

2.1.2 Class Dynamics and Labor Relations

Bournville was founded on Quaker principles by George Cadbury; hence, the company represents a town model that embraces liberal labor relations and community welfare; thus, it is relatively harmonious in terms of class environment. During colonial rule, Catumbela in Angola showed hierarchical labor relations that were likely to be exploitative, marking definite class relationships between the colonial administrators and local workers. Resource-based towns, such as Masjed-Soleyman and Patagonia, suggest a picture of highly charged stratification of social systems that indeed could sharpen class relations at any moment but particularly in periods of readjustment in the dominant industry-as labor unrest attests. These indeed replaced extractive industries with a combination of tourism and sustainable development in extractive industry company towns like Britannia Beach and Årdal, Norway. Added to this is the relationship with lower-class antagonisms, which are stated to be impeding social cohesion. From modern, unionized Ulsan down to being the de facto company town of Hyundai, so to say, labor relations mirror that of Korea in general. The Årdal moved from agriculture to aluminum production at the base of hydroelectric power, with strong labor laws and social welfare that also softened aggressive industrialism, supported a balanced community, and then maintained this hybrid of traditional and industrial labor activity.

2.1.3 Adaptation and Future Prospects

Company towns that are resource dependent, such as Masjed-Soleyman, Iran, and Patagonia, Argentina, are indicative of heavy stratification in social structures creating conditions that would exacerbate class relations relative to industrial change typical of those found within labor disputes. Resource dependent company towns show their evolving dependence through tourism and sustainable development from those of Britannia Beach in Canada to Årdal in Norway, also showing the decrease in class divisions and the greater social harmonization. Ulsan, Korea, unions representation in the microcosm of the large industrial relations system; one that is dependent on enlightened unions. From agrarian, through aluminum production based on hydroelectric power, to a model of hybrid traditional-industrial labor entrepreneurship, Årdal is a holistic community, important for it being shored up by robust labor laws and social welfare that relieve aggressive industrialism and retains the hybrid traditional-industrial labor entrepreneurship.

2.2 Coal Company Towns and Coal Towns

The literature and resources consulted do not make a clear distinction between these two terms, no clear distinction is identified while discussing different coal towns and coal company towns. These terms can be interchangeably used because sources themselves do not delineate or distinguish between them. In other words, different coal company towns and coal towns around the world are viewed to how industrialization is in line with communities. These towns are set up in far flung areas rich in natural resources and have played a very important role in the global supply chains of energy, being vital to the economies of their respective countries. This growth has come at considerable social and environmental costs. From the frozen Arctic of Vorkuta to the coal fields of Alberta, to Tanjung Bara in Indonesia, carefully planned town stories reveal economic booms, social clashes, and ecological effects.

The examples selected here, as in previous sections, are again largely chosen based on geographical location, attempting to include at least one representative from each continent. This is partly because there are only a few comprehensive works on the subject of company towns, so it is important to identify their global presence.

- **Vorkuta**: First established deep within the vast Soviet Union's Gulag system as a forced labor camp that blossomed right into a major coal town, Vorkuta was positioned in the Arctic Circle, making it one of the most inhospitable destinations for such camps. The site underwent redevelopment for regular mining once the era after Stalin had dissolved the Gulag system. The prison camps' legacy remains very raw, having decimated the social fabric and demographic distribution of the town, while the coal industry has been facing sharp economic difficulties owing to reduced demand. While the population has started to shrink, efforts to reshape the economy of the area-which, until recently, depended almost exclusively on coal mining-are underway (Barenberg, 2014).

Picture 1. The growing city, camp, and mines in Vorkuta. Source: Suter 2019

- **Fushun**: Coal and steel have long been the twin pillars of Fushun, a town in China's rust belt, each guided in turn by a major external force: first Japanese occupation, then Communist rule. From the 1930s into 1945, Japan industrialized the region to fully exploit the vast coal reserves. The end of the war led to a series of incidents as Communists took direct rule over the region, and over the coming decades, it diversified from coal and coal mining to a series of industries. Fushun epitomizes the coal town that did not fold when it ran short of its ore, thanks to the Communist government's push to develop new extractive and manufacturing industries and their plans to reshape the Chinese economy as a whole. Yet the town has also encountered extreme environmental conditions in its wake, some of which have failed to manifest in other coal towns in China (Borges, 2012).

Picture 2. View of the Fushun coal mining area, in 1913. Source: https://www.mindat.org/photo-1038431.html

- **Tanjung Bara**: Tanjung Bara Indonesia, in eastern Kalimantan, stands out as one of the first and final coal company towns of the Suharto era, designed in 1983 to accommodate employees of the state-owned coal company. This was no organic town that grew up around a pre-existing mine. It was planned and constructed as part of mine infrastructure, intended to afford its inhabitants an urbane quality of life. It can be considered exemplary in light of modern corporate strategies for the management of resources both human and natural. The economic viability of Tanjung Bara is closely tied to KPC's fortunes, and, as with all coal towns, it is an example of the well-documented concept of economic dependency. Its socio-economic features are also significantly influenced by the presence of a non-permanent expatriate workforce and their interaction with the permanent resident workforce (Borges, 2012).

Picture 3. Aerial view of Tanjung Bara. Source: https://en.wikipedia.org/wiki/Tanjung_Bara

- **Witbank**: Witbank, now Emalahleni, is a South African company town for coal, marked by sharp industrial development joined with abundant coal reserves of the region and leading to considerable economic gains and city sprawl that reflects a history dominated by mining, which has posed environmental issues and put pressures on infrastructure and social realms. The results of this case study provide evidence of the intricate pull between the 'resource curse' scenario where localized wealth from non-renewable resources, in this case coal, cannot provide for sustainable development (Campbell, 2017).

Picture 4. Witbank, main street. Source: https://showme.co.za/witbank/lifestyle/history-of-witbank/

- **Bochum**: The small farming town of Bochum, Germany turned into a major coal town upon the discovery of 'black gold' in 1841. A less crucial turn in its history was driven by coal; it

was not a classic company town, however, as the mining of coal was not dominated by anyone mining company. Bochum was unusual for a coal town in that it contained several mines which influenced it. The city has, over time and very surely, evolved from coal roots, embracing a highly advanced economy, variously diversified by technology, education, and cultural initiatives; it never forgets its industrial beginnings (https://www.eurofile.net.au/home/2017/4/7/bochum, https://eurocities.eu/cities/bochum/).

Picture 5. View of the Bochum coal mining area, in 1964. Source: https://www.mindat.org/photo-1067256.html

- **Central Queensland**: Central Queensland Australian coal towns boomed out from the international market of coal in the late 1960s through 1970s. During this period, there has been a 'capital boom' with a massive expansion of mine operations and the development of new towns for workforce expansion. Coal towns have a history of social and class conflicts, including major disputes of a labor nature over wages, conditions of work, and community services. In the tradition of Vorkuta and Fushun, Central Queensland is confronting economic transition through a search for alternative industries and measures that pursue sustainability (Gibson, 1991).

Picture 6. The open cut coal mine near Blackwater 1970. Source:
https://www.exploroz.com/forum/117541/sunday-history-photo--qld

- **Alberta**: The coal towns of Canada provide particularly interesting environments in which to study the social forces and cultural variations at work in extraction communities. During the 1910s the coal companies operated and supported these towns, which at most held a few hundred to 3,500 people. Although the male workers outnumbered the women, during the booming coal and railway industries development of these towns, the coal companies also started to attract an amalgam of women and families, pulling in kids and a range of women from better and worse socioeconomic status (http://history.alberta.ca/).

Picture 7. Drumheller's main street in Alberta. Source:
http://history.alberta.ca/energyheritage/coal/triumphs-and-tragedies-1914-1930/albertas-coal-town-evolution/default.aspx

In the thesis, it is stated that classic "coal towns" and "coal company towns" are not utilized as examples from South America due to two main reasons. Firstly, coal was not relied upon as the primary energy source during the developmental phases of the region. Secondly, less common in the historical context of South American resource extraction is the company town model-a single entity building and having control over the town around a resource. Thus, all of these factors explain why there are few classic "coal towns" or "coal company towns" in the region.

2.2.1 Economic Dependency and Industrial Evolution

The history of industries and the economic reliance of global coal towns is reflected in the fate of the coal industry. For instance, growth was realized in Vorkuta, in Russia, and Fushun in China since both the towns had rich deposits of coal and lived on high demand for coal. Central Queensland in Australia grew out of very high prices for coal. In the same respect, Bochum in Germany and Witbank in South Africa have diversified their economies as coal became less important. The one-industry towns, such as Tanjung Bara in Indonesia, are finding it increasingly challenging to manage economic development dependent upon one company with fluctuating coal prices stemming from around the world. Alberta's coal towns epitomize what a more general Canadian experience seems to be in a building composed of both environmental responsibility and the fluidity of the global economy. This represents a broader movement toward sustainable energy alternative. The manner in which a town economically progresses or undergoes evolution will continue to be determined by its relationship with the coal industry and what that denotes in relation and relevance to its shifts and struggles.

2.2.2 Class Dynamics and Labor Relations

How the class dynamics and labor relations work within the coal towns of the world are so very deeply bound into the specifics of its historical and geopolitical context that one really must explore them carefully on a case-by-case basis. Vorkuta, while still part of the Russian Federation, retains the legacy of a Gulag penal colony, which is to say that the form and content of its current labor relations had been shaped through that past. Labor disputes and strikes in Central Queensland, Australia emerged, in response to low wages and harsh working conditions, from a region that had long been ravaged in the exploitation associated with the capitalist production of natural resources. Inside Fushun, China possesses an intricate commercial history where labor rights had been largely changed between, by the times of Japanese and Chinese communist domination. Indonesia, Tanjung Bara, furnishes a literal global context that is talked about that relates to national companies dividing labor along national lines under corporate management. Bochum, Germany changed their reliance on coal in efforts to diversify their economy altered power dynamics of labor relations in the positive that changed them through no longer relying on the economy of a single industry. Witbank, South Africa, where a change in power dynamics is echoed by an industrial legacy of mining with an aura of moving to a more diversified economy, but all the labor and social challenges this brings. Alberta, Canada, is reflected in the nature of changing power dynamics through labor relations given the move away from coal as an industry due to environmental and economic diversification. Every town is a patchwork of unique diversions and townscapes, all interacting locally with labor, capital, and community, sharp by comparison with each other all due to the industrial legacies.

2.2.3 Adaptation and Future Prospects

The future of other coal towns around the world-Vorkuta, Fushun, Tanjung Bara, Witbank, Bochum, Central Queensland, Alberta-is a question mark hanging on the sweat and toil of adjustment in a world which is rapidly moving away from fossil fuels. Vorkuta struggles with depopulation and resource depletion. Central Queensland and Bochum are trying to achieve economic diversification. Fushun is diversifying into many industries, whereas Tanjung Bara's fate will depend on the decisions taken by both mineral companies and Indonesia's coal policies. Alberta, on its part, in any case, is most actively making there moves toward transitioning into sustainable energy sources in capturing broader environmental and economic transitions away from coal. These adaptations-a range of processes towards sustainability-are themselves indicative of local and international processes.

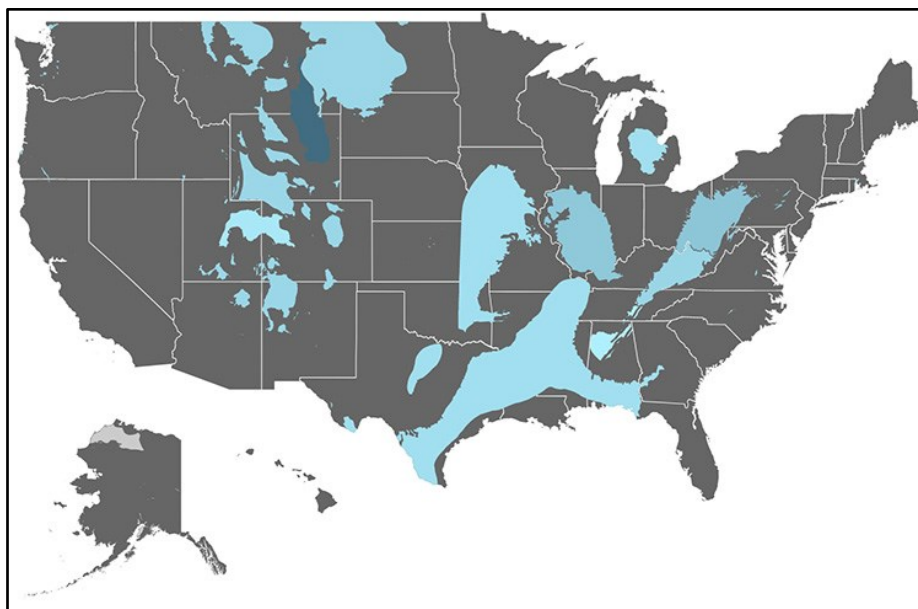While these coal towns and coal company towns share the foundational impact of having been built around coal mining, local economic policies, historic context, and environmental challenges

have taken these coal towns and coal company towns on diverging trajectories. Understanding of that nuance provides critical insight into possible paths these towns might take in an era moving into sustainable energy solutions.

3 COAL COMPANY TOWNS IN THE USA

The United States produced more than 774 million short tons[1] of coal in 2017. In the United States, there are three main regions where coal is produced (Figure 1): Appalachian (which includes Alabama, Eastern Kentucky, Maryland, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia), Interior (which includes Arkansas, Illinois, Indiana, Kansas, Louisiana, Mississippi, Missouri, Oklahoma, Texas, Western Kentucky), and Western (which includes Alaska, Arizona, Colorado, Montana, New Mexico, North Dakota, Utah, Washington, Wyoming) (https://www.americangeosciences.org/critical-issues/faq/which-states-are-largest-producers-and-consumers-coal).

Figure 1. Map of U.S. coal basins. The darker the blue, the higher the coal production in the basin. Image Credit: U.S. Energy Information Administration

At the turn of the twentieth century, the heyday of the company town, some estimates for North America put the number of coal company towns alone in the tens of thousands (Borges, 2012). The economic and social roles of company towns and were similar throughout the Americas. They

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[1]

short tons= 907.18 kg

expanded the horizons of industrial capitalism and developed into powerful modernity symbols (Dinius, 2011).

Sprawled across the regions, company towns are a common feature of the landscape, yet company towns in southern coalfields are quintessentially West Virginian. Born of a need to supply local labor, the company town phenomenon was by no means unique to West Virginia. However, the unique isolation of West Virginia and the scale of the coal boom demanded that company town life would have to be different from anywhere else in the country. More than extracting coal from the ground, the coal company towns in West Virginia were about creating a different society around it. The corporate towns of southern coalfield company towns in West Virginia Fall include the geographical isolation of the town, the deep impact of coal mining on the town, the strong cultural affiliation of the town with mining, history of strong lab or movements in the region, comprehensive economic control of the town by the coal company, and state policies with long histories. Put together, these factors have given towns that are singularly "West Virginia" regarding social safety nets and practices of mining culture, self-sufficiency, and the heritage of industry dependence and resistance. The railroads entered most of southern West Virginia when it was mountainous and home to a few minor towns including Beckley, Madison, and Aracoma which was later renamed Logan. Coal companies had to build towns and housing for miners in some of the most inaccessible areas. Some 80% of West Virginian miners had already lived in company houses in 1922. The building housing for their miners led West Virginia coal operators to establish small, privately owned towns. Virtually never incorporated, coal company towns did not have independent police forces or elected officials. Employers hired private detective agencies to keep laborers under surveillance. Besides, company towns were not subject to the free-market competition that owners typically promoted (https://www.pbs.org/wgbh/americanexperience/features/minewars-coalcamps/).

The coal companies cleared the forests for constructing the well-designed houses, schools, and churches close to the mines. The towns were on the railroads branch line. Most of the miners' houses were built basically alike, often from cheaper materials to reduce costs. Because most of these towns were in isolated areas, the miners and families were completely at the mercy of the companies concerning all services. Some businesses sited parks, movie theatres, and swimming pools by building far better care for families and workers who were mining. Indoor plumbing, electricity, and sewage systems all featured in homes in model towns (https://coalheritage.wv.gov/coal_history/Pages/Company-Towns.aspx).

The company towns of America's coal industry, particularly those located in Appalachia, were peculiarly enmeshed with economic opportunities and exploitation typical of the general industrial

trends and social dynamics in which they lay. A case best illustrative of such a phenomenon is none other than southern Colorado, which experienced a rapid growth in this area during the late 1880s into the early 1920s because of the coal industry, which soon became the region's most dominant economic engine. An explosion in population, the expansion of mining towns, and the demand for coal culminated in the massive rail transport networks that were created. This economic engine changed the physical geography of the area. Yet, it changed the region's social and cultural climate as well. Southern Colorado was placed in an impossible situation when coal ran out in the 1930s. Ghost towns, or abandoned mining communities, are scattered across most of southern Colorado. Many such communities, once teeming with life, have turned into something quite empty as of now. The plan does not suggest an approach to resurrect this history into a source of economic strength or as a form of heritage tourism, but rather an approach that suggests a visitor today would see little or no evidence of the history of mining on the landscape or that the communities which once depended solely on coal for their survival have chosen to forget about this themselves (Keane, 2000).

3.1 Industrial Growth and Development

The coal company towns of "exploitationville", mostly built up in areas thought to be rich in some resources like in Appalachia, the region had been known for its abundant coal supplies. Those towns became instrumental to the late 19th and early 20th industrialization in the United States. The US was turned into a leading global economic power mainly due to coal company towns. This is so because coal company towns were usually the nerve center where coal was extracted right from homes to factories and trains, done on a daily basis. Coal company towns sprung up rapidly due to the rapid distribution of the railroad system across the United States. Railroads highly facilitated the movement of coal from place to place in the country and also spurred the movement of goods and people. This connection caused the once distinct regional markets to become part of the national market (Green, 2012).

3.2 Company Control and Worker Exploitation

The coal companies who started and ran these coal company towns were able to heavily influence and even control a lot of what happened in the town. For instance, the companies owned and perhaps built the houses, the stores, and often even the churches. This made them not only the employer and landlord of the workers, but also exerted a strong influence on the thoughts and opinions of the workers. This also allowed them to have vast influence over the economic and health aspects of their worker's lives. Here they often got into a cycle of debt with the company. The company owned the

houses so they would rent them to the workers. The company had a store, and the workers would buy goods from it often on credit. They even often had a company script, or company money that the workers would use which would only work in the company store. All of this would lead to the worker being in close to constant debt to the coal company. Other problems would face the workers of coal company towns. Conditions in the mine were very tough. Miners worked long hours in the dark and in heat. Mines often collapse or explode, killing many miners. Many also developed diseases from breathing the dust of the mines such as "Black Lung", a terrible lung disease that many miners died from. In addition to the working conditions living in a coal mining town was difficult. They were located in very isolated areas, many times miles from the nearest town. This isolation made goods expensive. Challenging conditions like this show how the economics of coal mining often conflicted with the social and economic quality of the worker's lives. Life was often difficult in the coal mining towns (Green, 2012).

3.3 Cultural Impact

Coal company towns were also unique as cultural entities, bracketed off by their position in the coal industry. Made up of immigrants from all over Europe and migrants from elsewhere in the U.S., these towns were incredibly diverse. This diversity could inspire cosmopolitan and tolerant communities, or it could create tensions and conflict. But many of the coal company towns also had community events, music, and religious practices that helped provide social stability and relief from the daily grind of working-class lives (Green, 2012).

The cultural significance of the coal mining communities was remarkable, leading to an interwoven social fabric emerging over time. Given that work revolved around the mine in a very direct way, life in towns founded by coal companies was strikingly intimate. People typically worked the same shift as their neighbors, ate meals at the same time, and attended the same events because life was structured by the coal company operations. There were those who made collective decisions to act during the 1890s and early 20th century coal strikes in the United States, and their general cohesiveness and sense of identity was fostered in these towns during the era of large-scale anthracite coal production (Congressional Research Service, 2017).

3.4 Mines Closure

The closure of coal mines has a significant influence on the coal company towns around the world. The closure is usually driven by economic reasons such as the rising cost of mining and transportation, reduced demand of the coal market, the competition with alternative energies, or the exhaustion of

coal. Most coal company towns were dependent on the coal industry, to provide economic stability to the communities via employment. When these mines close it leaves many of small communities in a dire situation and no means of survival economically. Many of these towns became ghost towns with empty infrastructure and abandoned towns (Green, 2012).

The available data from the report "Historical Trends and Recent Developments 2017" by the U.S. Coal Industry shows a significant reduction in the total number of coal mines over three decades, dropping from nearly 3500 in 1985 to below 1000 by 2015 (Figure 2).

The closure of mines is not only the end of an industry but, it also initiates a transitional phase for the coal company towns. This new phase brings up new obstacles including lack of work and how they will replace the local economy. Green (2012) also identified the process of economic transformation and recovery for these towns. The complexity of this process becomes lengthy, especially with the remaining environmental concerns pertaining to the coal mining operations in the history of these lands such as land damage or water pollution. There have not been any successful initiatives to redevelop them back into vibrant economically stable communities following the significant abandonment left after the mine industry (Green, 2012).

Information from the U.S. Coal Industry's report "Historical Trends and Recent Developments 2017" describes how, according to the graph "Coal Mining Employment in America, 1985-2015," was a large reduction in total employment over thirty years. In 1985, the coal mining industry employed approximately 175,000 workers. That number was cut to just more than 50,000 in 2015. This graph demonstrates fairly steady decreases in employment in coal mining, reflecting ongoing economic difficulties in the industry and the impact of changing technology and regulation on the industry and, especially, the regional economies for which coal mining is a central part (Figure 3).
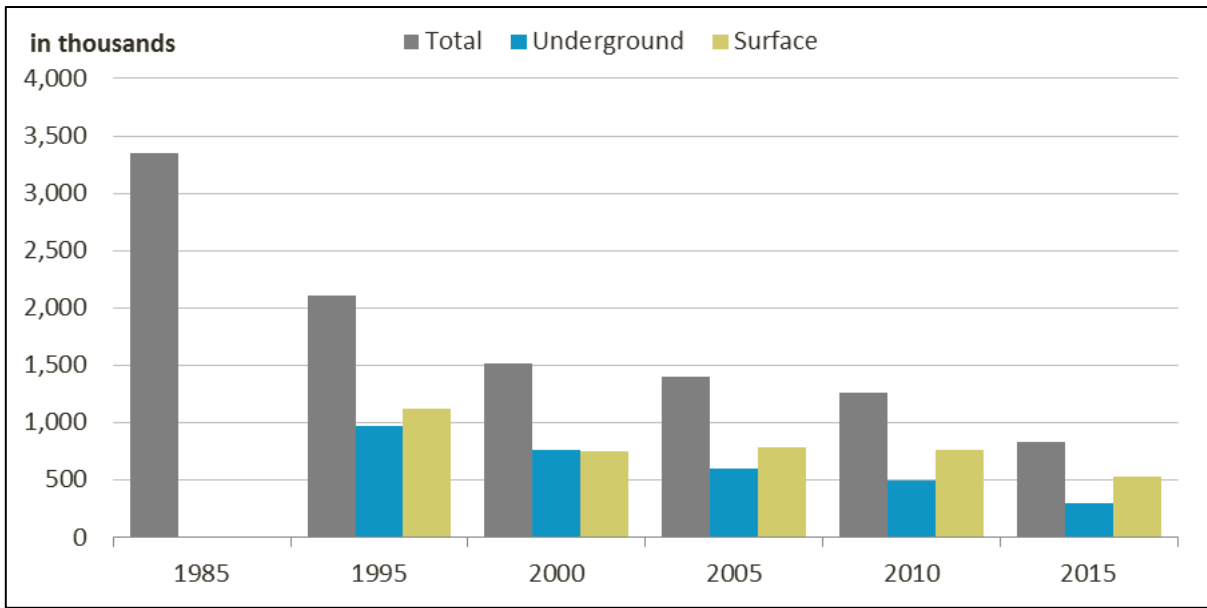
Figure 2. Number of Coal Mines and Types 1985-2015 Credit the U.S. Coal Industry: Historical Trends and Recent Developments 2017
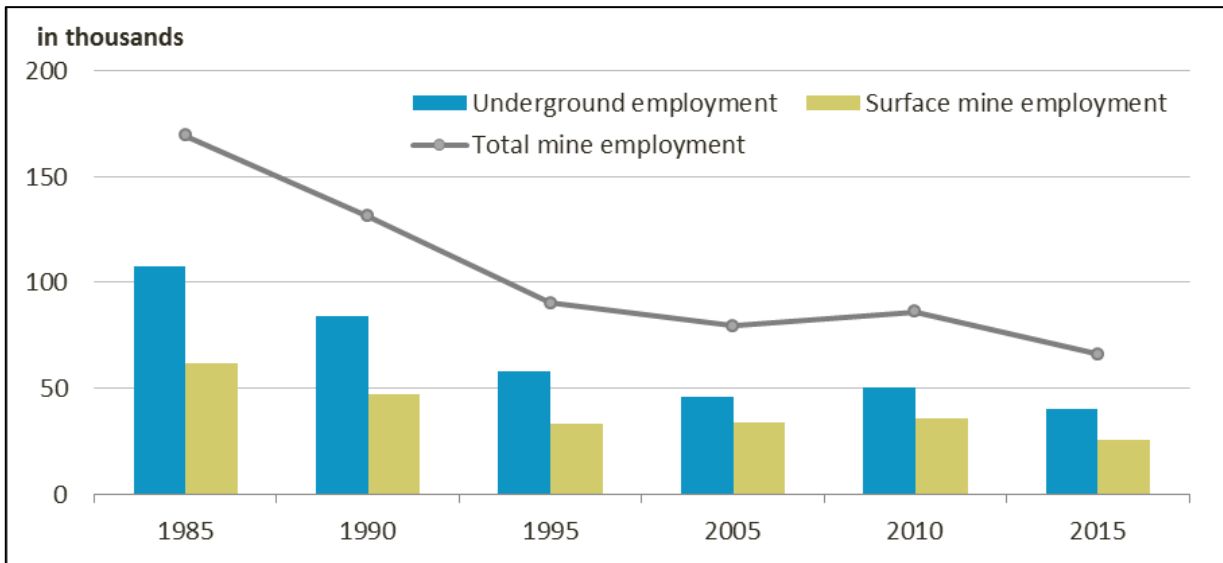
Figure 3. Coal Mining Employment in America,1985-2015 Credit the U.S. Coal Industry: Historical Trends and Recent Developments 2017

4 GEOGRAPHICAL AND HISTORICAL CONTEXT

4.1 Physical Geography

In terms of land area, Kentucky is the 37th biggest state in the union. Kentucky is bordered by Illinois, Ohio, and Indiana to the north; West Virginia and Virginia to the east; Tennessee to the south; and Missouri to the west. Kentucky has a total area of 40,408 square miles (Figure 4) (https://www.worldatlas.com/maps/united-states/kentucky).
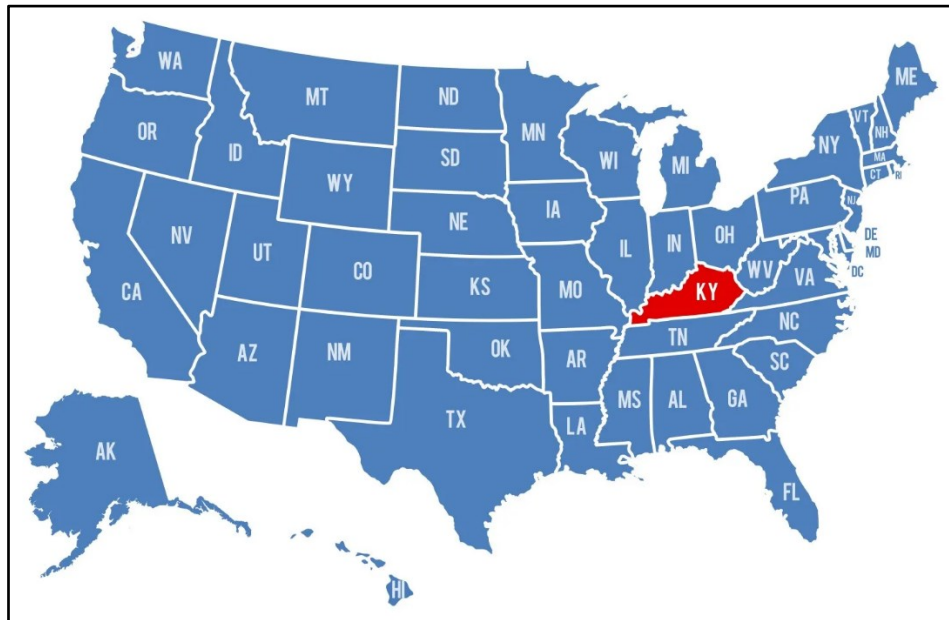
Figure 4. Map of Kentucky borders Credit: https://kychamberbottomline.com/2019/03/12/arbitration-agreement-policy-clears-full-house/

The state of Kentucky borders includes the Appalachian Mountain chain's forested heights, rocky gorges, tumbling waterfalls, broad valleys framing several major rivers, and fertile plains supporting a variety of agricultural activities. The state's landscape is divided into five primary physiographic regions: the Bluegrass, the Eastern Kentucky Coal Field, the Western Kentucky Coal Field, the Pennyroyal or Mississippian Plateaus, and the Jackson Purchase or Mississippi Embayment (Figure 5) (Ulack,1998).

The Bluegrass is host to some of the most highly fertile soils in the state, ideally suited for horse farms and the world's most famous horse farm area in thoroughbred horse racing. The limestone soil of the Bluegrass is iconic and is an example of an extraordinarily rich, nurturing agricultural

environment is an example of one of the soils that is most common in the Bluegrass Region. The Bluegrass Region can be divided into two areas, the Inner Bluegrass area, and the Outer Bluegrass. The Inner Bluegrass area is the area where Kentucky's most historic cities and towns are found, and includes Lexington, and is the more urban of the Bluegrass Region. The Outer Bluegrass is an area of the Bluegrass Region with less farming and higher, more rugged terrain (https://arboretum.ca.uky.edu/content/bluegrass-region).

The Eastern Kentucky coalfields are found in the Ohio Mountains and is famous for its rich coal deposits and steep, tree-covered mountains providing a unique combination of natural beauty and recreational opportunities (https://www.uky.edu/KGS/geoky/regioneastern.htm). The Western Kentucky coalfields provide a similar geological environment with less mountainous terrain (https://www.uky.edu/OtherOrgs/KPS/goky/pages/gokych17.htm).

The Pennyroyal or Mississippian Plateaus are known for having an abundance of cave systems and agricultural land, with the world-famous Mammoth Cave National Park located in this area. The Plateaus is further divided into the east and west Pennyroyal and is a blended habitat of wilderness and farming communities (https://www.uky.edu/KGS/geoky/regionPennyroyal.html).

Lastly, the Jackson Purchase area of Kentucky is defined by the Mississippi River and its very fertile, flat land exclusively used for agriculture. This area, complete opposite to the hill and mountain landscapes of the rest of Kentucky, is a steppe area (https://www.uky.edu/OtherOrgs/KPS/goky/pages/gokych18.htm).

Kentucky experiences a temperate climate with four distinct seasons. The summers in the state are hot and humid, and the winters are generally mild with occasional snowfall in the eastern part of the state.
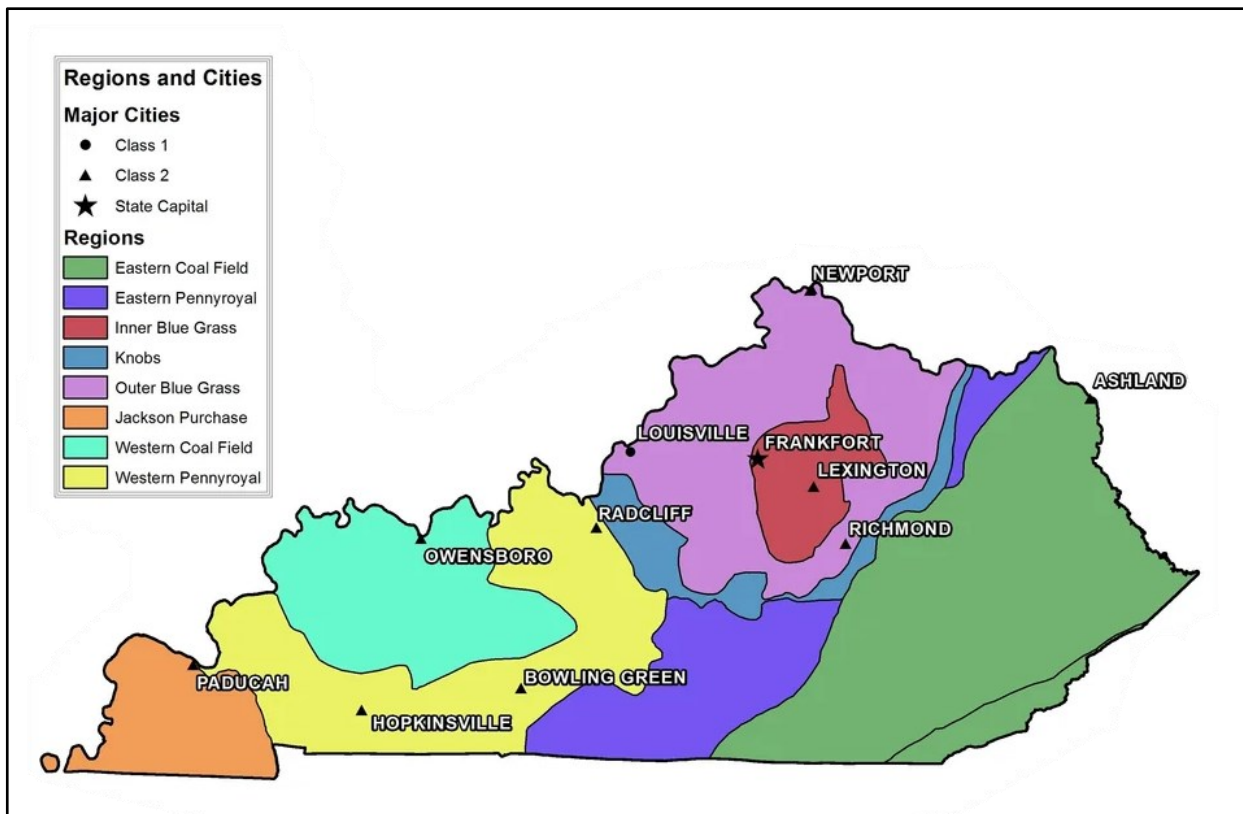
Figure 5. Map of Kentucky Regions Credit:
https://www.reddit.com/r/MapPorn/comments/2k3kcy/culturalgeographic_regions_of_kentucky_3300x2550/

4.2 Kentucky Geology

The Geologic Map of Kentucky (figure 6), showing the distribution of various geological formations that contributed to the location and development of coal company towns. The Pennsylvanian-age strata, shown in blue, are significant in both Eastern and Western Kentucky. Formed between 290 to 325 million years ago, these layers store the vital bituminous coal deposits of Kentucky which supplemented the coal industry in the state (Kentucky Geological Survey, 2018; Greb, 2002).

Eastern Kentucky Coal Field

This large blue area on the map represents the Eastern Kentucky Coal Field, which is underlain by Pennsylvanian age coal bearing formations consisting mainly of shale, sandstone, and coal. Major coal-producing towns are included in this boundary, with each location having thick seams of high-quality coal. Geologic formations such as these made Eastern Kentucky a seedbed for coal mining, establishing many coal company towns. The geology shows up as steep hills containing V-shaped valleys, and this too has set patterns for mining activities in terms of underground mining and contour

mining operations (Kentucky Geological Survey, 2018). The occurrence of rich seams of coal in this region influenced the development of coal towns along with the local economy.

Western Kentucky Coal Field

Formations of the Pennsylvanian age also occur in Western Kentucky but are less extensive than in the eastern coal field. Communities such as Hopkinsville and Paducah are situated near coal-bearing formations, but the coals are thinner and of lower quality compared to the eastern coal field. The Illinois Basin, in which Western Kentucky occurs has a more gentle topography with broad rolling hills that is suitable for surface mining (Greb et al., 2002). However, due to the inferior quality and narrower widths of the coal seams, fewer coal company towns were built in Western Kentucky than in the eastern field (Kentucky Geological Survey, 2015).

Central Kentucky

The Ordovician, Silurian, Devonian, and Mississippian formations, color purple, blue, red, and light blue on the map, represent no coal-bearing strata. These predominantly limestone, dolomite, and shale types of formations do not contain the geological requirements for coal formation. Thus, no significant mining coal operations or coal company towns were found in Central Kentucky.
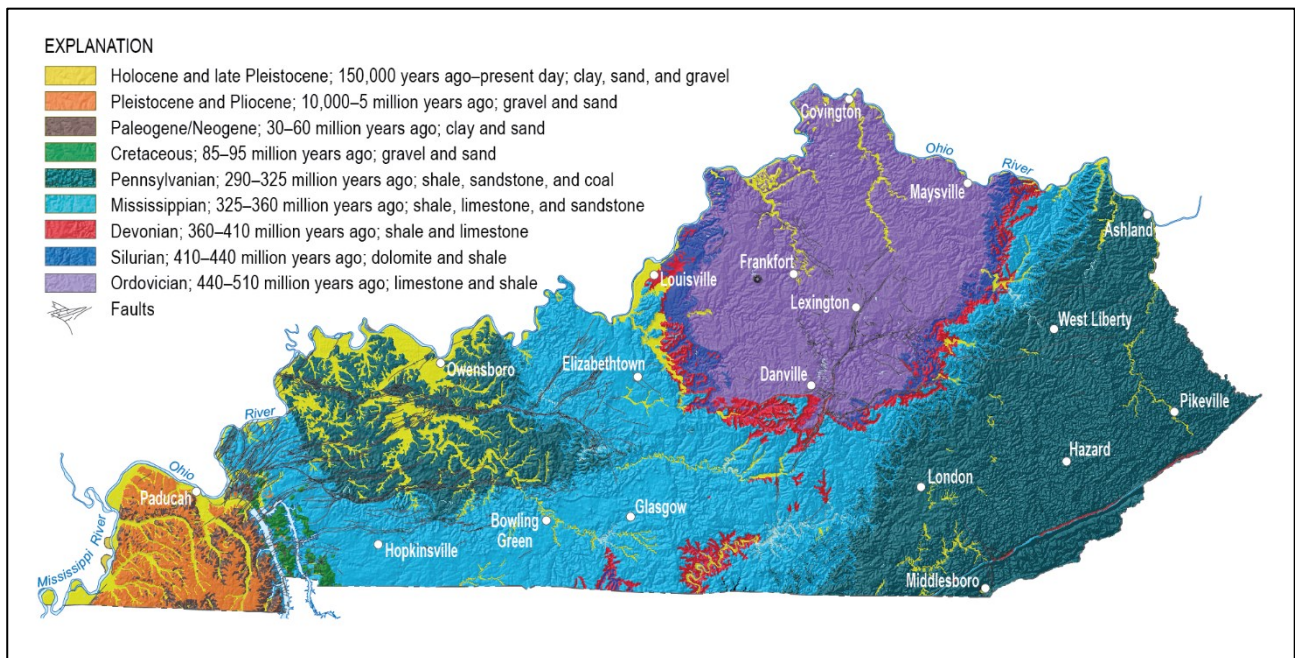

Figure 6. Geologic Map of Kentucky, Credit: Kentucky Geological Survey

4.3 Historical Context

Before the modern times, Kentucky was a settlement for Native American tribes like Cherokees, Shawnees, and Chickasaw, before becoming a place for discovery by European explorers in the 17th century. The Native American tribes benefited from the resources available to be extracted from the area and also used the many navigable waterways and pathways to trade.

The Europeans arrived in Kentucky during the mid-18th century and were mainly explored or settled by pioneers such as Daniel Boone, who played an important role in the annals of Kentucky settlement when he, among other things, created an important route known as the Wilderness Road and the establishment of Fort Boonesborough in 1775, which contributed an important chapter to the advance of settlement.

Kentucky originally formed part of the frontier of Virginia and became the 15th state admitted to the Union. It joined the United States in June 1792 and upon joining an influx of people and development tied to agriculture notably tobacco started. The Bluegrass had fertile soil and that was excellent for growing horses and horses would go forth and be a paramount part in development of the Kentucky's equestrian industry. Kentucky played a key role in the American Civil War as a border state. The state declared neutrality in the war, however later sided with the Union. Kentucky was divided internally and engaged in some hostilities; the state was a target for both the Union and the Confederacy to enlist military soldiers from the state. Every Kentuckian was affected by the war. The immediate post-war years were tumultuous in Kentucky as the state adjusted to the new reality of freedom for enslaved individuals and Kentucky's re-entry into the Union. Like much of the United States, Kentucky matured as an industrial state during the century that followed. Among these industries were coal mining and a variety of manufacturing and transportation industries. The state also matured into a bourbon-producing state, home of the Kentucky Derby as well (Ulack,1998), (Lee, 1982).

4.4 Coal in Kentucky

Coal mining in Kentucky has a long and diverse background. The coal mining industry was a key asset to Kentucky's expansion as a state and it has evolved over the years. For many years, Kentucky has been among the top three coal-producing states in the nation; at present, it holds the third position (https://www.uky.edu/KGS/coal/coal-ky-info-coal-production.php).

In Kentucky, coal has been utilized for more than 250 years—possibly even older if one includes the Native American Indians (http://www.coaleducation.org/coalhistory/default_H.htm). Coal in

Kentucky was first identified by Dr. Thomas Walker on April 13, 1750, the earliest known account of coal in Kentucky. The first commercial coal mined in Kentucky was from the McLean drift bank sometime around 1820; the McLean mine was located near Paradise in Muhlenberg County and not far from the Green River. Coal mining has continued in Kentucky since the 1820s. Beginning with the first commercial mine in 1820, by the late 19th century coal mining developed into an important part of the state's economy and the railroad system in space aided the steamboat (http://www.coaleducation.org/coalhistory/default_H.htm).

Coal company towns that have been scattered in eastern and western Kentucky, appeared from the late 19th and early 20th centuries. Built by industrialists and company owners, worker villages were erected to house employees in mining that had worksites in remote areas. Some other factors too helped in the industrialization of Kentucky with the mining of coal; although it was not free from massive conflicts, which resulted in problems with the coal industry's workers and with its environment, and also plagued the labor strife. Workers' struggles to form coal miners' unions for the coal ran up against the established stiff resistance by the coal industry, but the coal industry started growing increasingly integrated with the economy of Kentucky. Coal mining in Kentucky grimaced in places in history as well, and their portrait of child labor in the mines has several examples. Child labor continued until the state passed legislation in the early 20th century to try to raise the work status of miners and coal industry workers and reduce the number of working children underground (https://kygs.org/eastern-ky-coal-mining-records/).

Kentucky's coal mining regions are divided into two distinct coal fields: Eastern and Western coal fields. Eastern coal fields span several counties in the eastern part of the state, including the coal-rich areas of Pike, Harlan, Letcher, and Floyd. Eastern Kentucky can be credited with major impacts on the coal mining industry due to its densely rich coal deposits. These large reserves have been primarily influential in shaping the regional economy throughout history. In comparison, the western coal fields stand as a smaller group; in western Kentucky -Muhlenberg, Hopkins, and Henderson- few counties have some coal mining heritage, but with much less geographic area.

5 RESEARCH METHODOLOGY

The methodology followed in this thesis was underpinned by a quantitative and qualitative epistemological stance, placing an emphasis on locating a study within a particular social, cultural, and historical context, which not only provides information regarding the identities participants make within that context but also the social construction of these contexts. Sources and data were a concern taken through two major strands: the first being the checking of bibliographical and primary sources and, secondly, using maps.

5.1 Data Sources and Collection

Data collection was considered extensive from online sources for capturing huge interest in digital platforms that would be able to give comprehensive historical and contemporary insights arising from the subject matter. Core data that were to constitute the backbone of analyses were retrieved from the United States Census Bureau website: https://www.census.gov/. Such data were compiled into a database in a structured way, in order to allow for deeper analysis and historical reconstruction of the coal company towns phenomenon in Kentucky. These included the University of Kentucky's Coal Camp Documentary Project, https://appalachianprojects.as.uky.edu/coal-camps, and the Kentucky Coal and Energy Education Project, http://www.coaleducation.org/, which helped to identify forty-nine coal towns across fourteen counties.

5.2 The Data Base of the Coal Towns in Kentucky

The spatial database is organized, annotated checklist that breaks down each coal town across Kentucky into counties and summarizes information that illuminates key historical and operational processes of the town.

The table is organized into columns:

- County: Represents the county in which the coal town is situated.
- Towns: Lists the coal towns within this county.
- Start-End Year: The duration for each town of operation. This column includes date of inception and end.
- Status: Current situation of each coal town, designations can include "Occupied", "Destroyed" or "Abandoned" are used to describe the modern status of the town.

- Population: This column indicates the population of the towns, in years 1930, 1950, 1980, 2000, 2020, reflecting shifts in demographics over time.
- Coal Company Town: Is this town a "coal company" town? Yes or No. This question guides attention to what extent coal companies influenced the town.
- Company Name: If applicable, what entity was the coal company associated with the town (if any). To complete the industrial and economic history of the town.

This spatial data base acts in many ways as a critical key to understanding the growth and decline in the coal industry throughout Kentucky's counties. It captures for the reader the changes of operation and population caught within each town but also further captures the role the coal company or companies played in history and day-to-day life for the town. It sets an example of the economic and social value of the coal company in the context of its geographic setting for a continuous time period. The compiled data serves not only for historical analysis but also as a spatial map that indicates the geographical spreading and internal dynamics of these towns over periods of time.

5.3 Mapping and Analysis

Maps were created with the ArcGIS software platform using vector shape file layers to ensure geographic precision and analysis. The descriptive analysis steps were utilized to describe the distribution of resources and to provide a historical perspective of coal mining in this region. These maps exemplify the ways that the coal industry affected Kentucky's development and environment during the 20th century.

Knowledge about the dynamics of coal towns in Kentucky has been learned through the use of a plethora of sources, including written materials, primary sources, and mapping. Significant industrial and socio-economic differences within coal towns are allowed to be delineated by these sources.

Using ArcGIS Pro 3.2.2, a shapefile including all of the geographic points from the coal towns that we are studying has been created. This shapefile, which attribute table is shown in Figure 12, provides a map representing coal towns and coal company towns throughout Kentucky. The data is projected using the WGS 1984 Web Mercator coordinate system.

The attribute table of the shapefile shall therefore be a sort of comprehensive database, which documents every town's history and operational processes in a structured manner. It includes structured data on operational years, and population dynamics, thus enabling the detailed spatial analysis of the development and transitions for those towns. This database allows for in-depth spatial analysis regarding the formation of coal towns and coal company towns. A screenshot of the attribute

table, Figure 7, provides a visual reference that can help in understanding the database structure along with the data that is collected for each town.

	FID	Shape *	OBJECTID	title	No	Towns	County	Begin_End	Status	Pop1930	Pop1950	Pop1980	Pop2(
1	0	Point	1	Colmar	1	Colmar	Bell	1910-1952	-	-	-	-	-
2	1	Point	2	Middlesboro	2	Middlesboro	Bell	1889-1952	Occupied	8041	14482	12251	10371
3	2	Point	3	Jackson	3	Jackson	Breathitt	1905-1934	Occupied	-	-	2651	2485
4	3	Point	4	Ravenna	4	Ravenna	Estill	1915-Uncertain	Occupied	1189	979	793	693
5	4	Point	5	Auxier	5	Auxier	Floyd	1911-1952	Occupied	-	640	-	608
6	5	Point	6	Drift	6	Drift	Floyd	1917-1953	Mostly Destroyed	-	3500	-	569
7	6	Point	7	Garrett	8	Garrett	Floyd	1919-1951	Occupied	-	-	-	-
8	7	Point	8	Martin	10	Martin	Floyd	Uncertain-1958	Occupied	-	373	827	633
9	8	Point	9	Prestonsburg	11	Prestonsburg	Floyd	1908-1949	Occupied	2105	1136	4011	3604
10	9	Point	10	Wayland	12	Wayland	Floyd	1917-1955	Occupied	2436	1807	601	298
11	10	Point	11	Glo	9	Glo	Floyd	1920-1942	Occupied	-	926	-	-
12	11	Point	12	Weeksbury	13	Weeksbury	Floyd	1917-1953	Occupied	1609	1840	-	3108
13	12	Point	13	Wheelwright	14	Wheelwright	Floyd	1918-1958	Occupied	1822	2087	865	1042
14	13	Point	14	David	15	David	Floyd	1942-1958	Occupied	-	-	-	435
15	14	Point	15	Benham	16	Benham	Harlan	1912-1958	Occupied	-	3976	936	599
16	15	Point	16	Lynch	17	Lynch	Harlan	1919-1958	Occupied	-	3976	1614	900

0 of 49 selected

Figure 7. Screenshot of the Attribute Table for the Coal Towns Shapefile. Credit: Author

5.4 Digital Story Mapping

A Digital Story Map made by ArcGIS has been created showing coal company towns in Kentucky for a highly effective way of data expression and interaction. This tool is expected to overlay wide geographic and historical data from the state archives, mining records, the United States Census Bureau, and historical archives. The key uses to be achieved with the Story Map are twofold: presentation of data and engaging the user.

Data Presentation: Easily present complex data to a wide audience in an accessible, interactive format, enabling users to dynamically explore the spatial distribution of coal towns and the historical context in which they existed.

User Interaction: The Story Map does a great deal to actively involve the user through zooming into maps and clicking through town profiles, including longer narratives and socioeconomic data for each of the towns.

These are elaborative maps of all coal basins across the USA, including specific coal portals in Kentucky that form the interactive pieces of the Story Map. On these maps, the user can interact and retrieve data on each town's history.

6 RESULTS

The following chapter will explain what we did to gather data to systematically study coal company towns throughout Kentucky. This chapter is organized around the research objectives that we introduced in Chapter One. Company towns are examined in a comprehensive way, bringing together both qualitative and quantitative research methods, including archival research and spatial analysis, which is accomplished with a GIS platform.

We engaged in this research by collecting data about the previous and concurrent landscape of company towns from the late 19th century to the present day. The chapter discusses the various levels of complexity identified in these towns using data from our research. These data are part of the wider academic conversation about company towns from the past, how the towns persist, and the transformation of the towns in the face of development challenges. These results contribute to understanding about regional development in Kentucky specifically and the life of coal in America more generally.

Figures 8 and 9 together introduce coal mining across the state of Kentucky in graphic format. The Map of Coal Boundaries visually denotes the exact locations and extent of permitted surface and underground mining with the location of surface mines in blue while the underground is in red, and with a high density of permitted mining in the east. The map delineates the area of surface and underground mining that is permitted in the state and the configuration of mining operations. The Map of Coal Portals indicates the exact location of coal portals. These two maps in combination provide different perspectives for linking the coal mining infrastructure in Kentucky with the areas of mining.
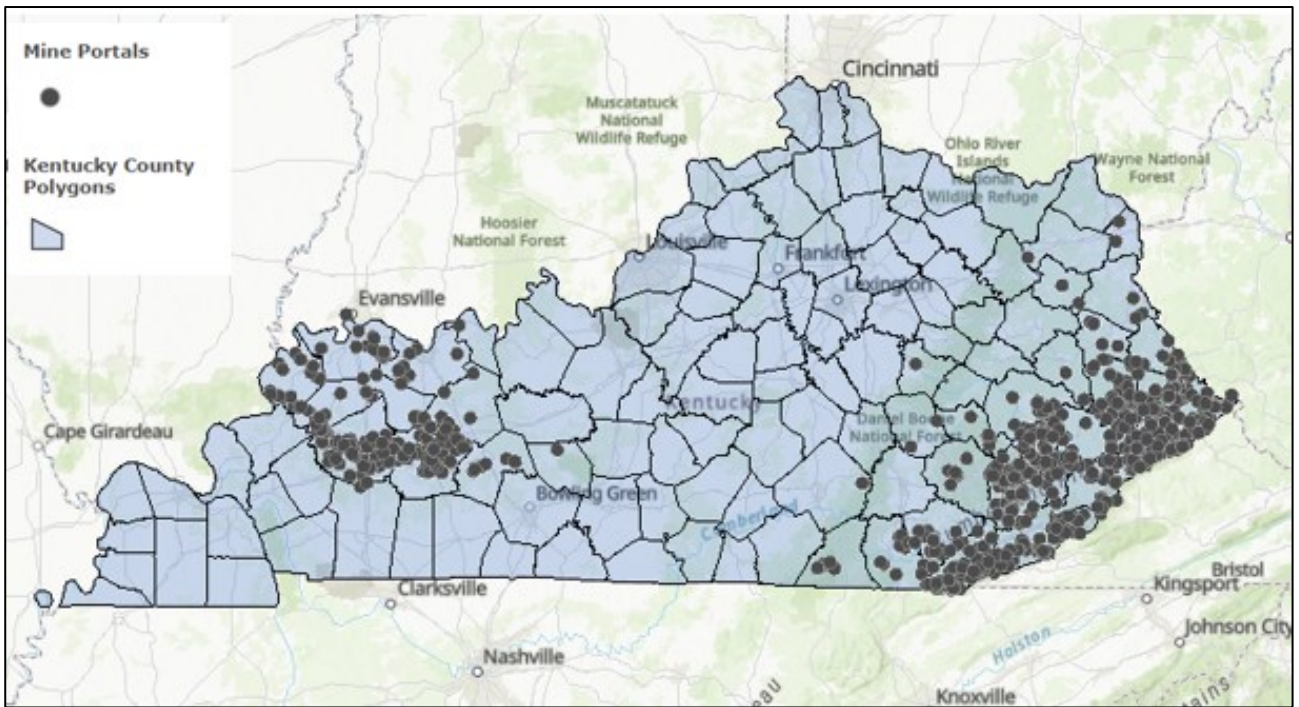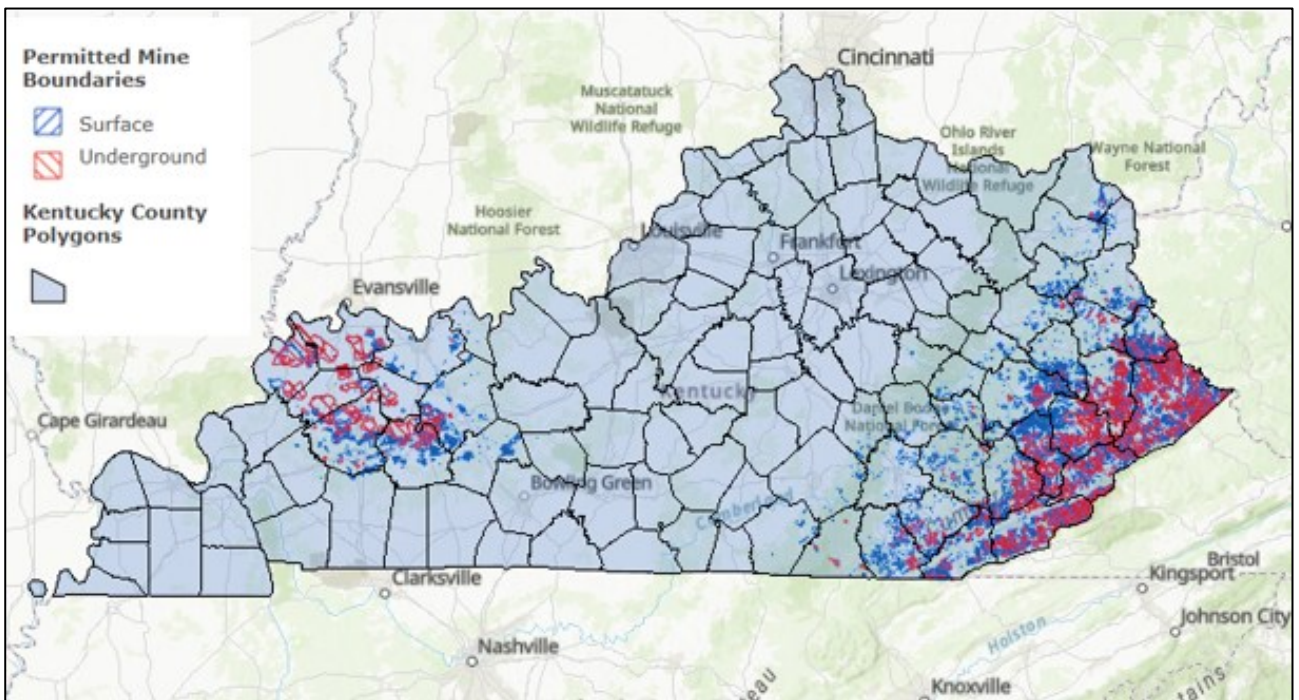
Figure 8. Map of Coal Portals Credit: http://minemaps.ky.gov/Maps/GISData Graphic Elaboration: Author

Figure 9. Map of Coal Boundaries Credit: http://minemaps.ky.gov/Maps/GISData Graphic Elaboration: Author

Figure 10 clearly illustrates variation in mine portal densities throughout Kentucky and reveals how coal mining activities have varied between Eastern, Western and Central Kentucky. The highest density of mining activities is seen in Eastern Kentucky, where the mine portals closely cluster together. This area, rich in coal deposits, has been the center of mining activities in the state of

Kentucky. The Western part of Kentucky shows less density of mine portals. This area also hosts coal production; it is not as intense in terms of activity compared to the east. The seams of coal are thinner on the Western part of Kentucky, the mine portals, as can be seen, are more spaced, hence showing less reliance on coal production. In contrast, Central Kentucky shows nearly no mining activity within its confines by the lack of mine portals on the map. The absence of portals in a region signifies highly finite coal mining activities, due to the lack of sufficient coal deposits that would be worth mining in that area.
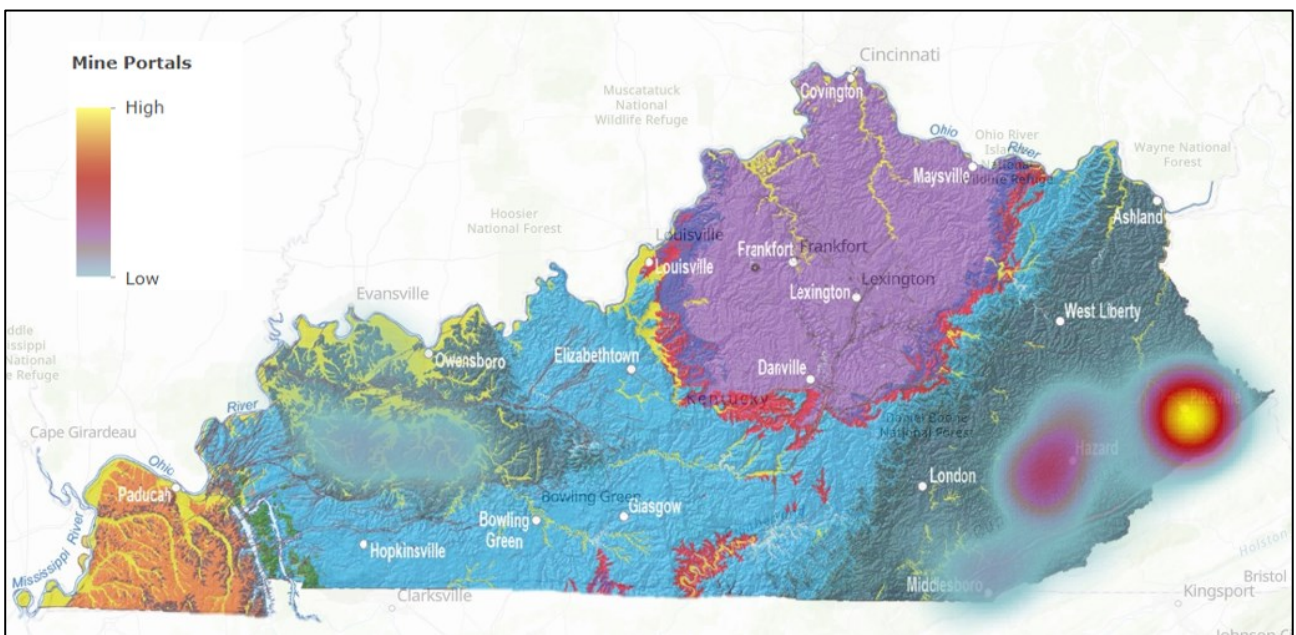

Figure 10. Kentucky Coal Portals Heatmap. Credit: Author

This research identified forty-nine coal towns and coal company towns in fourteen counties. Most of these towns are located in Eastern Kentucky, in Floyd County and Letcher County. Among these towns, Lynch and Benham are the most well-known. Benham, which had better housing, running water and electricity, schools, churches, a hotel, commissary, meat market, theatre, baseball diamonds, a doctor, and other facilities provided by the company, was frequently referred to as a model coal town (https://uknow.uky.edu/campus-news/announcements/coal-camps-and-railroads-digitizing-primary-sources-appalachian-economic).

Floyd County is the highest at eleven, totaling 22.4 % of the coal company towns. Letcher County is close behind with ten towns and 20.4%. Muhlenberg County rounds out the top three with seven towns, making up 14.3% of the total. Harlan County has five towns, for 10.2%, and then there are others with a considerable number of coal company towns but at smaller percentages, McCreary, Bell, Johnson, Pike, and Perry, are the only other counties with five or more coal company towns,

ranging from 6.1% to 4.1%, between two and three towns are featured in each county. Some counties feature a lower number of coal company towns, such as Breathitt, Estill, Knox, Whitley, and Webster, which are represented by one town each, or 2.0 %. This distribution demonstrates the varying impact and reach of the coal industry in Kentucky, through history, development, and uneven geography (Figure 11).
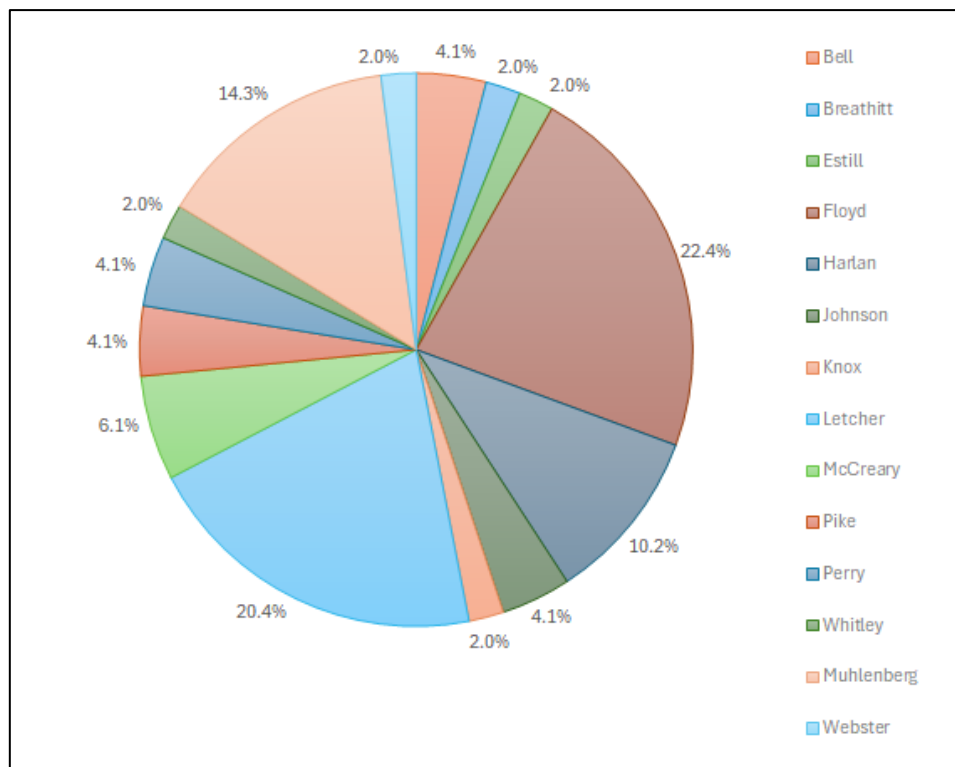
Figure 11. Geographical Distribution of Coal Company Towns by County in Kentucky. Credit: Author

Table 1 extensive information on coal towns in multiple counties including Bell, Breathitt, Estill, Floyd, Harlan, Johnson, Knox, Letcher, McCreary, Pike, Perry, Whitley, Muhlenberg, and Webster. Each listing provides information about operational years, current status, and historical association with coal companies for each town, and the statuses of the towns are diverse, from "Occupied" to "Destroyed" or "Abandoned." that records the rise and fall of the coal industry in these places. The entries are presented with each town's operational history and, if applicable, any companies that are associated with coal. The compilation of both operational histories and, if appropriate, coal company associations provide an enriched understanding of the industrial history of these towns and eliminates the relative cacophony of the industrial heyday. This information provides background to understanding the pressure of coal mining on the economy and the development of these countries at the juncture of the 20th century.

50

No	Towns	County	Begin-End Year	Status	Population					Coal company town	Company name
					1930	1950	1980	2000	2020		
01	Colmar	Bell	1910-1952	-	-	-	-	-	-	?	-
02	Middlesboro		1889-1952	Occupied	8041	14482	12251	10371	9242	No	Better Coal Co
03	Jackson	Breathitt	1905-1934	Occupied	-	-	2651	2485	2237	No	Kentucky Union Coal Co
04	Ravenna	Estill	1915-Uncertain	Occupied	1189	979	793	693	568	?	Louisville & Nashville Railroad
05	Auxier	Floyd	1911-1952	Occupied	-	640	-	608	715	?	Northeast Coal Co
06	Drift		1917-1953	Mostly Destroyed	-	3500	-	569	-	?	Long Fork Coal Co
07	Feds		1927-1942	Destroyed	-	-	-	-	-	?	Squire-Elkhorn Coal Co
08	Garrett		1919-1951	Occupied	-	-	-	-	798	Yes	Elkhorn Mining Co
09	Glo		1920-1942	Occupied	-	926	-	-	-	Yes	Glogora Coal Co
10	Martin		Uncertain-1958	Occupied	-	373	827	633	513	No ?	Pivot Elkhorn Mine Inc
11	Prestonsburg		1908-1949	Occupied	2105	1136	4011	3604	3681	No	Middle Creek Coal Co
12	Wayland		1917-1955	Occupied	2436	1807	601	298	389	Yes	Elkhorn Coal Co
13	Weeksbury		1917-1953	Occupied	1609	1840	-	3108	2599	?	Koppers Coal Co
14	Wheelwright		1918-1958	Occupied	1822	2087	865	1042	509	Yes	Elkhorn Coal Co
15	David		1942-1958	Occupied	-	-	-	435	-	Yes	Elkhorn Coal Co
16	Benham	Harlan	1912-1958	Occupied	-	7952	936	599	512	Yes	Wisconsin Steel Company
17	Lynch		1919-1958	Occupied			1614	900	658	yes	US Coal & Coke Co
18	Wallins Creek		1915-1939	Destroyed	900	525	459	257	212	?	Cumberland Cannel Coal Co
19	Kenvir		1921-1958	Occupied	-	-	-	-	204	?	Peabody Coal Co
20	Highsplint		1919-1958	Destroyed	-	-	-	-	-	Yes	High splint Coal Co
21	Van Lear	Johnson	1910- 1946	Occupied	1329	2337	2035	-	893	?	Consolidation Coal Co
22	Thealka		1911-1952	Destroyed	-	-	-	-	-	Yes	Northeast Coal Co
23	Barbourville	Knox	1905-1930	Occupied	888	949	3333	3589	3222	?	Bastin Coal Co
24	Burdine (Jenkins)	Letcher	1914-1930	Occupied	-	-	-	-	-	?	Consolidated Coal Co
25	Dunham (Jenkins)		1916-1946	Occupied	-	-	-	-	-	Yes	Elkhorn Coal Co
26	Fleming-Neon		1907-1950	Occupied	-	943	1195	840	548	Yes	Elkhorn Coal Co
27	Haymond		1913-1950	Occupied	-	203	-	-	-	?	Elkhorn Mining Co
28	Hemphill		1920-1955	Occupied	-	-	-	-	-	No	Elkhorn Coal Co
29	Jenkins		1912-1946	Occupied	8465	6921	3271	2401	1902	?	Consolidation Coal Co

30	McRoberts		1918-1946	Occupied	-	-	1106	921	741	?	Consolidation Coal Co
31	Millstone		1920-1958	Occupied	-	-	-	-	92	?	Southeast Coal Co
32	Seco		1915-1958	Occupied	-	644	-	-	-	?	Southeast Coal Co
33	Blackey		1917-1932	Occupied	349	598	-	153	105	No	Blackey Coal Co
34	Barthell	McCreary	1905-1958	Destroyed	-	-	-	-	-	?	Stearns Coal & Lumber Co
35	Stearns		1905-1976	Occupied	-	-	1557	1586	1365	Yes	Stearns Coal Co
36	Blue Heron (Mine 18)		1937-1962	Abandoned	-	-	-	-	-	?	Stearns Coal Co
37	Elkhorn City	Pike	1810-?	Occupied	996	1349	1446	1446	1035	No	-
38	Stone		1914-1958	Occupied	-	-	-	-	67	?	Pond Creek Coal Co
39	Hardburly	Perry	1931-1958	Occupied	-	-	-	-	-	?	Hardy-Burlingham Mining Co
40	Hazard		1914-1957	Occupied	7021	6985	5371	4806	5236	?	Hazard-Dean Coal Co
41	Red ash	Whitley	1904-1928	Destroyed	-	-	-	-	-	?	Proctor Coal Co
42	Browder	Muhlenberg	Uncertain	-	-	-	-	-	-	?	-
43	Central City		Uncertain	-	-	-	5214	5893	5819	?	Central Coal & Iron Company
44	Drakesboro		Uncertain	-	-	-	798	627	481	?	-
45	Graham		1904-Uncertain	-	-	-	-	-	-	?	Duncan Coal Co
46	Greenville		1970-present	-	1486	1069	4631	4398	4492	?	-
47	Luzerne		1901-1951	-	-	-	-	-	-	?	-
48	Paradise		1856-1967	-	-	-	-	-	-	?	-
49	Providence	Webster	1820-Uncertain	-	4484	3905	4434	3611	2892	?	Richard Savage

Table 1. Historical Overview of Coal Towns in Kentucky: Operational Years, Status, and Company Affiliations. Credit: Author
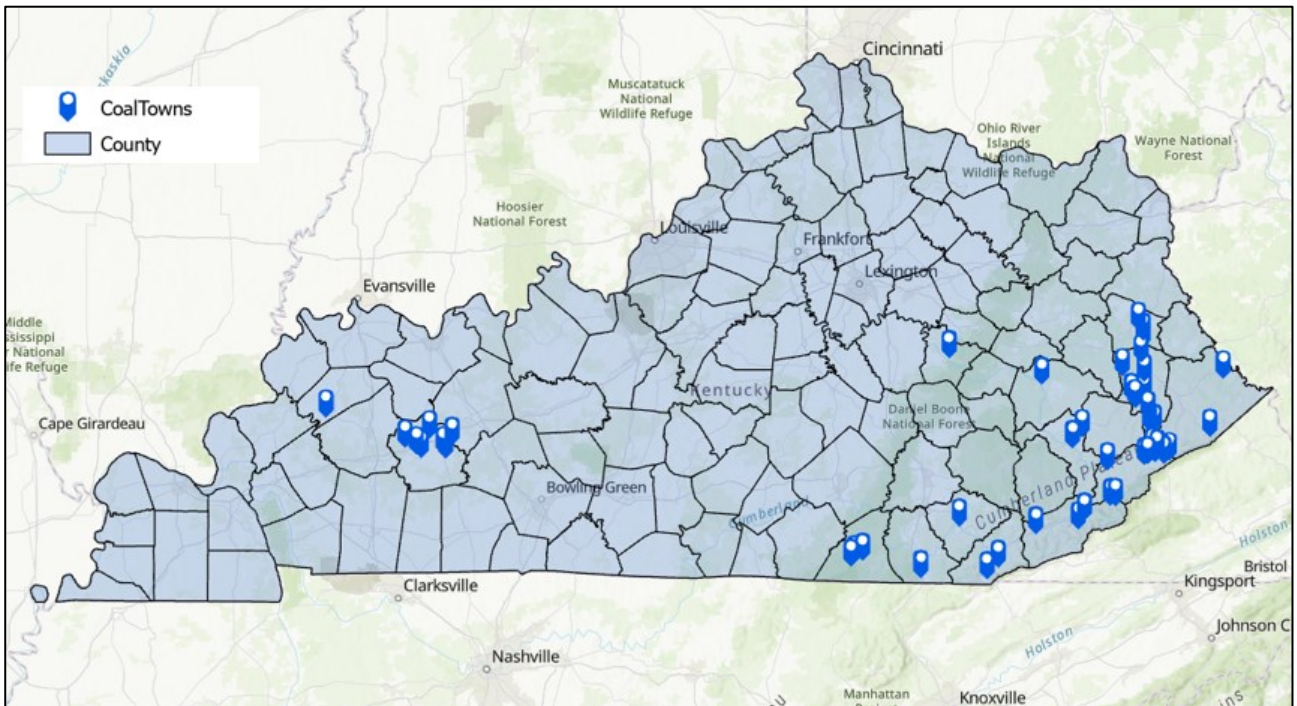
Source:

https://data.census.gov/

https://www2.census.gov/

https://censusreporter.org/

https://www.zipdatamaps.com/

https://appalachianprojects.as.uky.edu/coal-camps/county-map

http://www.coaleducation.org/coalhistory/coaltowns/coal_towns.ht

Figure 12. Map of Coal Towns/Coal Company Towns. Credit: Author

Below is a heatmap for Kentucky coal company towns (figure 13), supplementing the data with the visual of concentration and distribution across counties. As indicated, Floyd County and Letcher County have the highest density of coal towns, seen in the darker red areas of the heatmap in the southeastern region. This could indicate that these are historically important areas, as both have been known to be involved with coal mining, again reflected by the higher percentage of total coal towns featured.

Muhlenberg County, though in another part of the state, seems to appear with some significant concentration, as well. Darker shading indicated its standing within Kentucky's history of coal production. Other counties, such as Harlan, Pike, and Bell, show a moderate level of coal town density.

On the other hand, counties like Breathitt, Whitley, and Webster had fewer coal towns; they show lighter colors in the heat map, which reflects fewer coal towns. The difference here is geographical, southeastern Kentucky has a high concentration, while other more western and central parts of Kentucky show fewer coal town activities; what this points to is an extreme discontinuity in the spread of coal mining operations within the state.

The map visually reinforces the idea that the influence of coal was far from uniform across Kentucky, the variation in density of coal towns reflects how geographies, accessibility to seams, and

industrial investments of different counties shaped their destinies in the coal economy and linked directly to the operational status and histories.
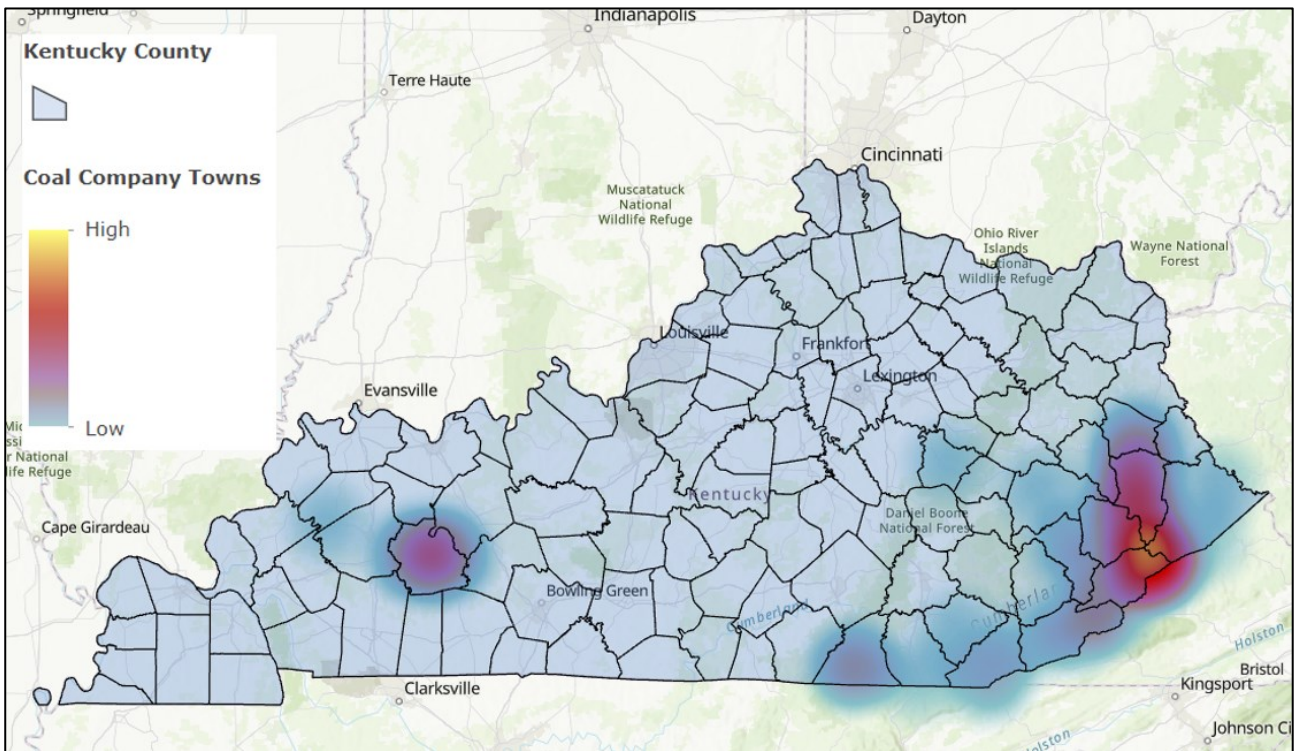

Figure 13. Kentucky Coal Town/Coal Company Town Heatmap. Credit: Author

6.1 Population Trend

Shifts in population growth are important indicators of the well-being and health of communities. Population growth rates are indicators of key system dynamics within the community, such as the economy (and more broadly, the economic activity, birth rates, migration patterns, community desirability). In our case, trends of increasing or positive rates of population growth suggest a thriving and more active economy. Such conditions are often related to job opportunities, developed infrastructure, high-quality education, and good governance. The logic is that economic activity and consequent investment draws people, housing, and public amenities, leading to a new cycle of growth and economic prosperity. In contrast, stagnant or decreasing rates of population growth can be indicators of risk in a community. This risk may manifest as a decline in economic growth, availability of job opportunities, poor housing stock, poor infrastructure, or declining public services. In rural, and especially smaller, communities, stagnant or decreasing rates of population growth may be compounded by young people leaving to seek opportunities in urban areas. By moving away from

their communities, they may leave behind a more aged population that will, in terms of economic activity and the provision of community resources and services, struggle to do more to support these activities provided by the community. By tracking these rates, decision-makers (such as policy makers, investors, community leaders) can better understand the situation the community is facing and make better-informed decisions. By measuring the trends in population growth, specific options can be generated for policy that work with the current patterns of growth or engage actively with patterns of decline in population growth. It is from these trends that policy and action can be developed in regard to community planning, investment, and economic development (Massey, 1993), (https://pressbooks.howardcc.edu/worldgeography/chapter/chapter-2/).

To calculate the percentage change using the peak population and the most recent population for each town. The percentage change is calculated as follows:

Percentage Change= ((Most Recent Population−Peak Population)/Peak Population) ×100

Comparing the sociodemographic between different towns, many of the towns have obvious population decline which indicates the substantial nature of sociodemographic change. Drift, Wayland, Wheelwright, Wallins Creek, and Blackey all constitute towns with population decreases from lows of 75.61% in Wheelwright to highs of 84.03% in Wayland. These huge population losses mean broader implications in sociodemographic terms, which are supposed to be accompanied by economic recessions, failing industry, environmental concerns, or relevant jobs for the local economy that explain these changes. Such steep losses of population will have serious consequences for the social structure in aging demographics, less generated local government revenue, and challenges in the maintenance of service provision. That would be important, given the fact that it is remarkable that changes in the population can be huge enough to fall under the need of strategizing for reconfiguring this place or re-imagining it. This information will be useful for policy makers, local investors, and community leadership as they contemplate future decisions in light of demographic trends relevant to the context and capacity of the town. In other words, from the perspective of planning and investment, proactive strategies based on comprehension of sociodemographic trends have to be pursued in ways that respect community niches and circumstances take advantage of the growth or address and reverse the decline.

No.	Town	Peak Population (Year)	Most Recent Population	Percentage Change (%)
01	Colmar	-	-	-
02	Middlesboro	14,482 (1950)	9,242	-36.18
03	Jackson	2,651 (1980)	2,237	-15.62
04	Ravenna	1,189 (1930)	568	-52.23
05	Auxier	-	-	-

06	Drift	3,500 (1950)	569	-83.74
07	Feds	-	-	-
08	Garrett	-	-	-
09	Glo	-	-	-
10	Martin	827 (1980)	513	-37.97
11	Prestonsburg	4,011 (1980)	3,681	-8.23
12	Wayland	2,436 (1930)	389	-84.03
13	Weeksbury	3,108 (1980)	2,599	-16.38
14	Wheelwright	2,087 (1950)	509	-75.61
15	David	-	-	-
16	Benham	936 (1980)	512	-45.30
17	Lynch	1,614 (1980)	658	-59.23
18	Wallins Creek	900 (1930)	212	-76.44
19	Kenvir	-	-	-
20	Highsplint	-	-	-
21	Van Lear	2,337 (1950)	893	-61.78
22	Thealka	-	-	-
23	Barbourville	3,589 (1980)	3,222	-10.22
24	Burdine (Jenkins)	-	-	-
25	Dunham (Jenkins)	-	-	-
26	Fleming-Neon	1,195 (1950)	548	-54.15
27	Haymond	-	-	-
28	Hemphill	-	-	-
29	Jenkins	6,921 (1930)	1,902	-72.53
30	McRoberts	1,106 (1980)	741	-32.99
31	Millstone	-	-	-
32	Seco	-	-	-
33	Blackey	598 (1930)	105	-82.44
34	Barthell	-	-	-
35	Stearns	1,586 (1980)	1,365	-13.94
36	Blue Heron (Mine 18)	-	-	-
37	Elkhorn City	1,446 (1930)	1,035	-28.42
38	Stone	-	-	-
39	Hardburly	-	-	-
40	Hazard	7,021 (1930)	5,236	-25.42
41	Red ash	-	-	-
42	Browder	-	-	-
43	Central City	5,893 (1980)	5,819	-1.26
44	Drakesboro	798 (1930)	481	-39.72
45	Graham	-	-	-
46	Greenville	4,631 (1980)	4,492	-3
47	Luzerne	-	-	-
48	Paradise	-	-	-
49	Providence	4,484 (1930)	2,892	-35.5

Table 2. Population Dynamics and Trends Across Coal Company Towns. Credit: Author
Percentage changes in population are color-coded for clarity. Red indicates a decrease of more than 85%, signifying major declines. Green indicates a decrease of less than 25%, showing relative stability.
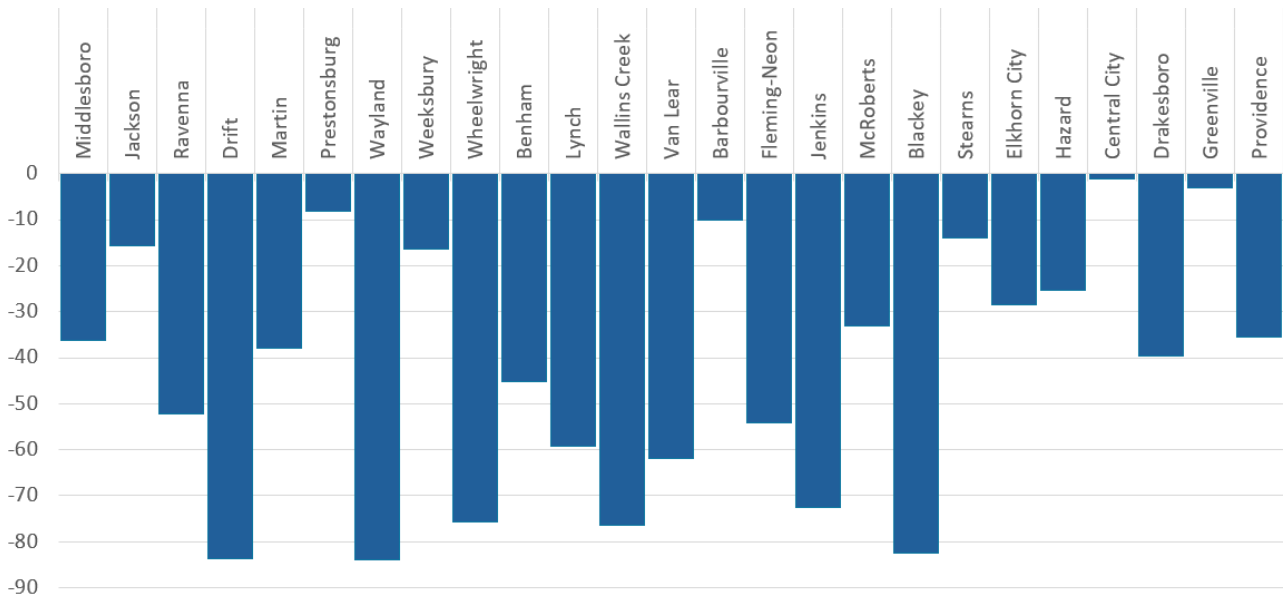
Figure 14. Population Decline in Coal Company Towns. Credit: Author

6.2 The Rise and Fall of Coal Company Towns

Between 1910 and 1920, coal company towns began springing up quite rapidly in Kentucky. Over twenty company towns were founded during this decade. These company towns mirrored the broader development of the coal industry in light of the increased demand for coal and attendant housing and infrastructure needs for manpower to be used in coal mining. In the 1920s, there were fewer company towns than in the period between 1910 and 1920; thus, the market has probably cleared after exponential growth during the last decade. The 1930s also experienced a decline in company towns due largely to the economic slump, and partial restructuring of mining companies. Fewer towns were established after 1940, again mirroring changes in economic conditions, the technology of coal mining, and the housing suggestions for miners during that time (Figure 15).
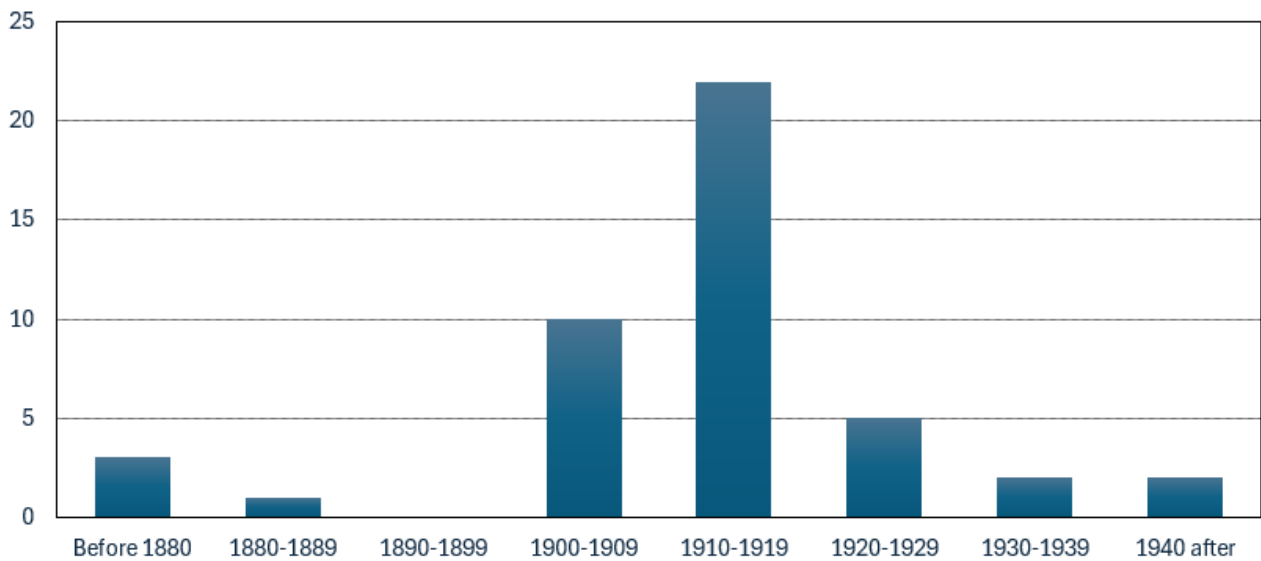
Figure 15. Chronological Distribution of Coal Company Town Foundation. Credit: Author

There are remarkable trends in the spatiotemporal distribution in Coal Business Closures across Kentucky over ten-year periods. We see very few closures before the year 1930, indicating a period of coal companies holding on to or growth. Decades from 1930-1939 and 1940-1949 show only modest increases in closures, indicating that the firms not able to persist were adjusting to those periods. Next, the most striking peak of closures fell within the decade of 1950-1959, during which over twenty-five companies exited the industry due to periodic shifts in the pattern of energy use, increased mechanization, and wider economic change. In the 1960s and throughout all other decades, the number of closures reduced to zero, supposing that since the establishment of those two mentioned above, many companies in this field have already reached their decline and closure phase, and only one stood apart-the Greenville mine; however, up to the moment, a check has not been performed, but it is not explained in the data why the mine is still open. A pattern across several decades would suggest a point of rapidness and the extent of closure during the 1950s-possibly not fully completed and the decline phase of the industry in that area was clearly marked by the 1960s (Figure 16).
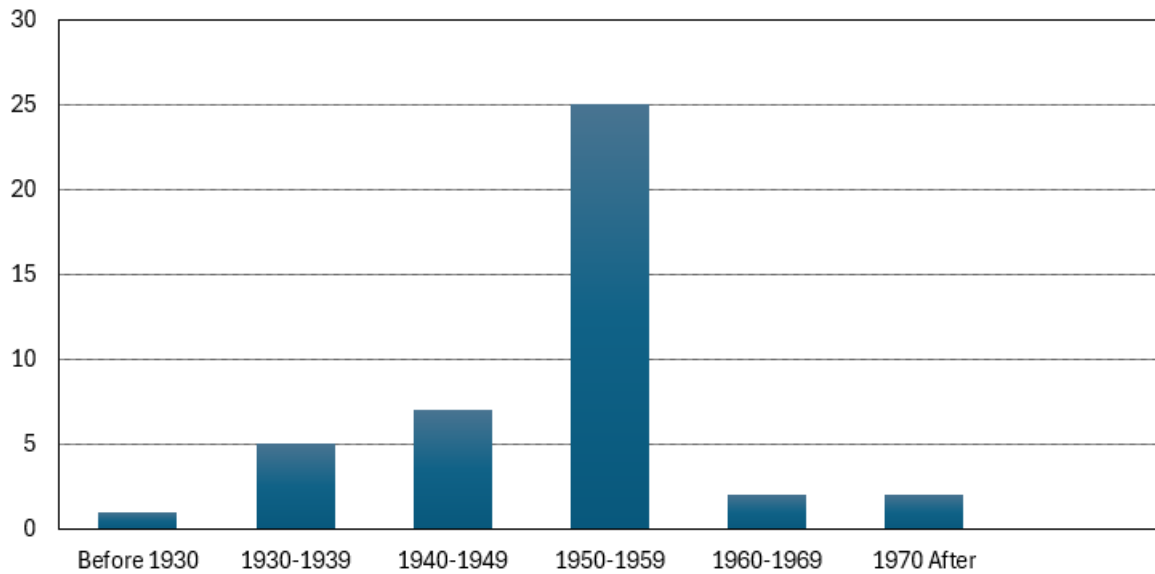
Figure 16. Chronological Distribution of Coal Company Closure. Credit: Author

6.3 History of Kentucky's Coal Towns and Company Coal Towns

The following sections will offer an overview of historical development and population trends for a variety of coal towns and coal company towns. This analysis will search specifically for the influence of the economic base in coal mining and how those towns are affected by that economic structure. Historical accounts review how the initiation and building of each town took place, and the pivotal role of coal in that building. We will discuss population trends as a way to show the shifting economy, how these towns have changed with respect to the coal industry. The present analysis advances knowledge in an effort to better comprehend the present and evolving influence of coal within the context of a changing global economic system.

01. Colmar:

Picture 8. Silk Stocking Row, Source: http://www.coaleducation.org/coalhistory/coaltowns/colmar.htm

The Colmar coal camp was in operation from about 1910 until 1952. Rent was charged to the miners, as was heating coal, utilities, doctor's visits, and other services were deducted from their wages; all items had to be purchased directly from the company.

Life in the coal camps was highly structured. The residential areas of the camps were very class conscious. Supervisory personnel lived in better homes and lived closer to the camp entrance. The area of the camp where the supervisors lived was commonly known as "Silk Stocking Row." The picture presented above is one of "Silk Stocking Row" at the Southern Mining Company's camp at Colmar, Kentucky in the mid-1940s to early 1950s era (http://www.coaleducation.org/coalhistory/coaltowns/colmar.htm).
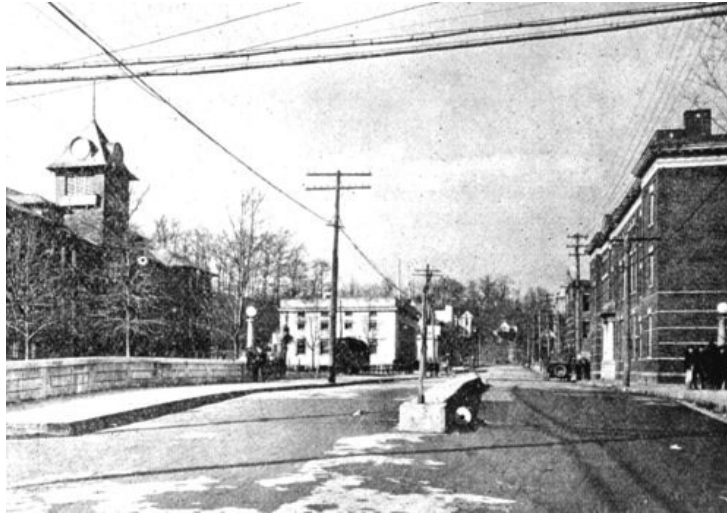
02. Middlesboro:

Picture 9. View of North 20ᵗʰ St., showing public school and post office on the left. ca 1924, Source: http://www.coaleducation.org/coalhistory/coaltowns/midborro.htm

Middlesboro, Kentucky was founded by Alexander Arthur, an innovative Canadian resource entrepreneur in the late 18ᵗʰ century. Middlesboro is unique as it was founded one mile from the historic Cumberland Gap situated in the Appalachian Mountains. Middlesboro was founded based on the earlier pioneer settlement at Yellow Creek in 1810. Middlesboro holds a rich cultural history (http://www.coaleducation.org/coalhistory/coaltowns/midborro.htm).

Under Arthur's leadership, during which the town got investments by British financiers, Middlesboro grew rapidly. The town began to form in 1889 and several decades later it swelled to the size of a mid-20ᵗʰ century city. The sudden boom was due to the infant coal industry, which was further escalated by the Better Coal Co. After the successful and growing coal era, the population reached its peak with 14,482 in 1950 (http://www.coaleducation.org/coalhistory/coaltowns/midborro.htm).

Middlesboro has changed over the decades and the benefits were accompanied by a slow decrease in the demand for coal, and likewise the industry itself was peaceful over several decades. By 2020, the town had slowly adjusted in population to 9,242 and showed the communities resilience and adaptiveness managing the peaks and valleys in prosperity like Middlesboro finds themselves so consistently in, with the town being so reliant on a natural resource.

03. Jackson:
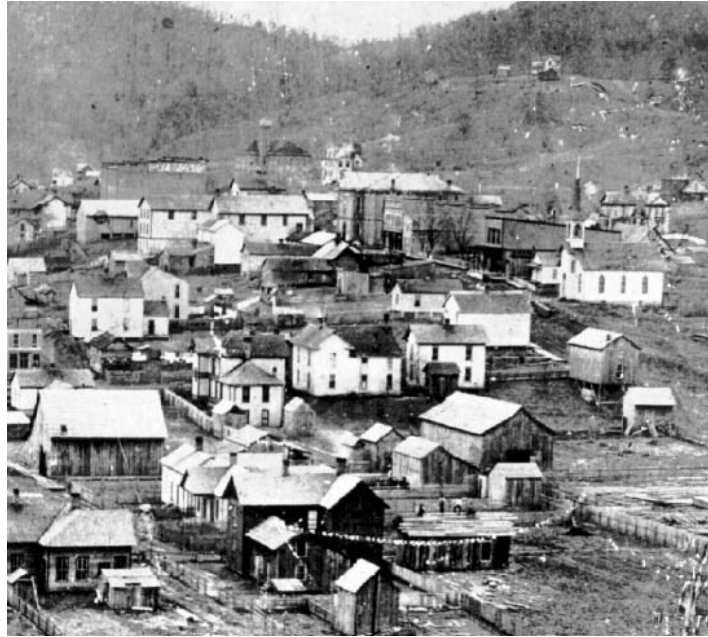
Picture 10. Downtown Jackson - about 1896, Source:
http://www.coaleducation.org/coalhistory/coaltowns/jackson.htm

Jackson is a typical Appalachian coal town, sited amidst historical and rugged terrain in the state. The beginning of the twentieth century, specifically around 1905 marked not only the start of an uptick in coal mining in Breathitt County, but the beginning of Kentucky's sustained coal production period. Kentucky Union Coal Co. opened operations, heralding a coal mining boomtime that would be characteristic of the town for many decades. Data shows it has steadily declined during the last 40 years, and results of the latest 2020 Census place the population at 2,237. The readjustment of municipal functions in Jackson is a foreshadowing of how towns that have coal and other similar resources find their way through transitions in search of guidance due to changes in economies within their communities (http://www.coaleducation.org/coalhistory/coaltowns/jackson.htm).
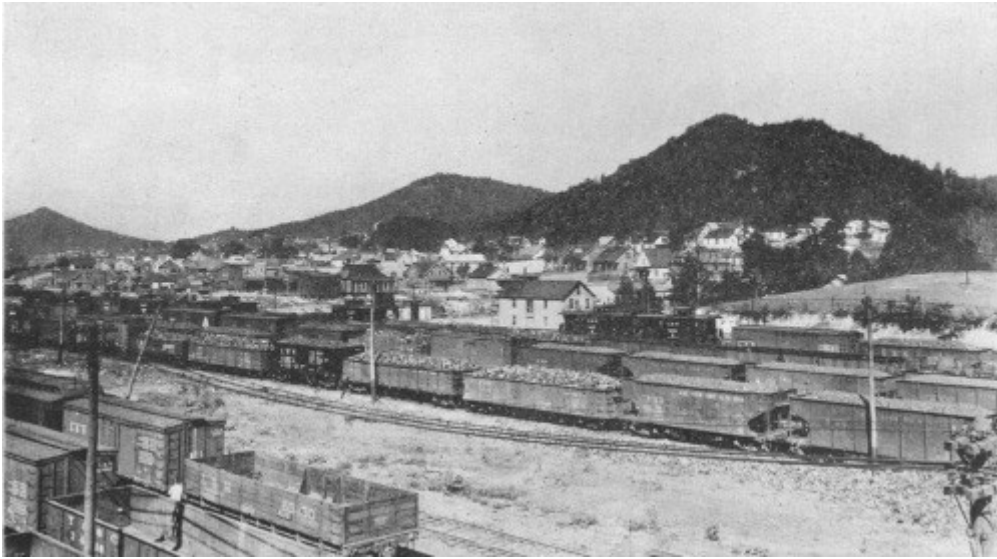
04. Ravenna:

Picture 11. Ravenna, Source: http://www.coaleducation.org/coalhistory/coaltowns/Ravenna.htm

Ravenna's establishment is commonly placed at around 1915 when it was incorporated as a town, although it has its roots in the early 20th century. The contributing factor to its development and growth was the railway line - the L&N Railroad. The railroad not only ushered in the economic growth relative to the movement of coal, but it also defined the town in terms of its geography and physical and social structure. Having the railroad had everything to do with Ravenna's vitality, serving as a lifeline for coal production, and as its largest employer (https://railfan.com/the-kentucky-steam-heritage-story/).

Reflecting the times and coal industry, Ravenna's population fluctuated with the fortunes of the coal industry until the mid-twentieth century. By 1930, its population was 1,189, but it has experienced a consistent decline ever since, which again is indicative of worldwide economic transitions and the shift away from coal as the major industry globally. In 2020, its population was 568.

05. Auxier:
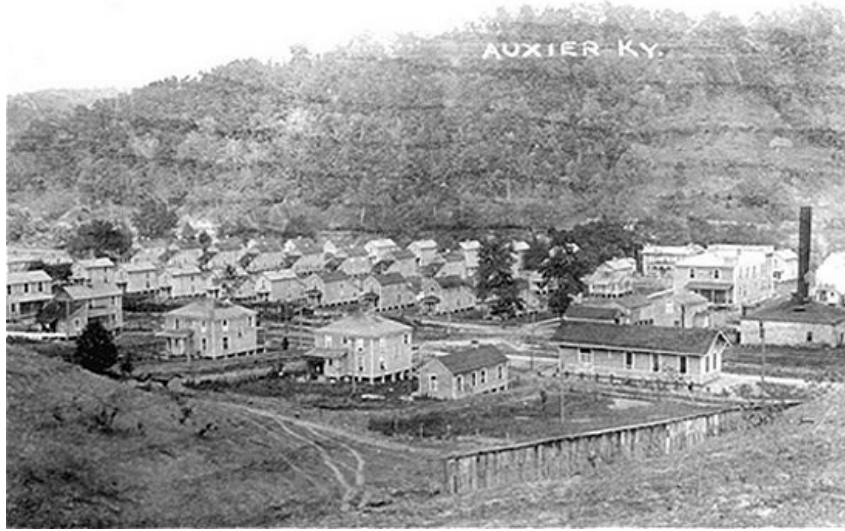
Picture 12. Auxier, Source: http://www.coaleducation.org/coalhistory/coaltowns/auxier.htm

Auxier, shares in the history of the coal mining industry, an industry that has significantly shaped equal parts of the community and economy of Auxier. Founded around 1911 at the turn of the 20th century and following a similar story to other towns in the region, Auxier's history has been closely tied to the boom-and-bust times of mining. Auxier's mining past has long and deep history with the Northeast Coal Co. helping strengthen its ties to the coal industry and economic pivots over time (https://www.kyatlas.com/ky-auxier.html).

At the height of the boom, the 1950's, Auxier reached its largest population recorded in the 1950s, at 640 people, and the coal industry brought to the miners, their families, and the mining community with prosperity and challenges. Auxier's population figures wax over the years. The 2000 Census reports a drop to 608 people, which is closely related to the coal industry shrinkage or what can be observed in other coal towns and industries that show reduced activity. In the 2020 Census, the population rose to 715 people, relating to certain levels of resilience or maybe something else. A diversification in the local economy may be a reason or simply to live in an area, regardless of the economic past.

06. Drift:

Picture 13. Drift, Photo about 1920's, Source: http://www.coaleducation.org/coalhistory/coaltowns/drift.htm

Drift-a coal town whose name origins are debated, but are tied either to a type of coal mine, or driftwood found locally. The town, with the arrival of the railroad in 1917, began to boom and by 1919, three coal camps had been established hiring 177 miners.

Drift was part of an extensive network of coal towns in what was a gigantic demand for coal in the early 20th century. With the demand in the coal market, coal mines-often facilitated by out-of-town entities-jointly faced difficulty bringing in laborers. The shortage of laborers necessitated coal firms to gradually develop better living conditions to attract and retain more workers. Besides this, other amenities included building company towns in which housing and community facilities were provided along with swimming pools, baseball fields, and theaters to provide for the stabling of miners' lives to be more community-like (https://www.gardenstogables.com/movie-magic-drift-floyd-county-kentucky/).

07. Feds:
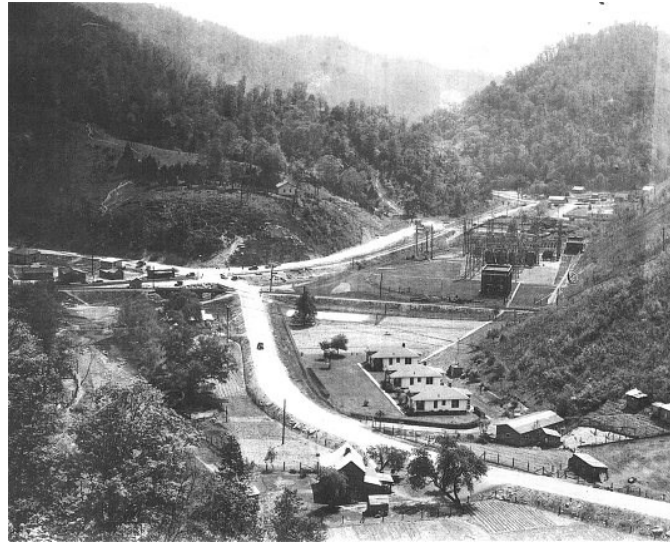
Picture 14. Feds, Photo about 1939 Source: http://www.coaleducation.org/coalhistory/coaltowns/feds.htm

No online records or data are available regarding Feds.

08. Garrett:
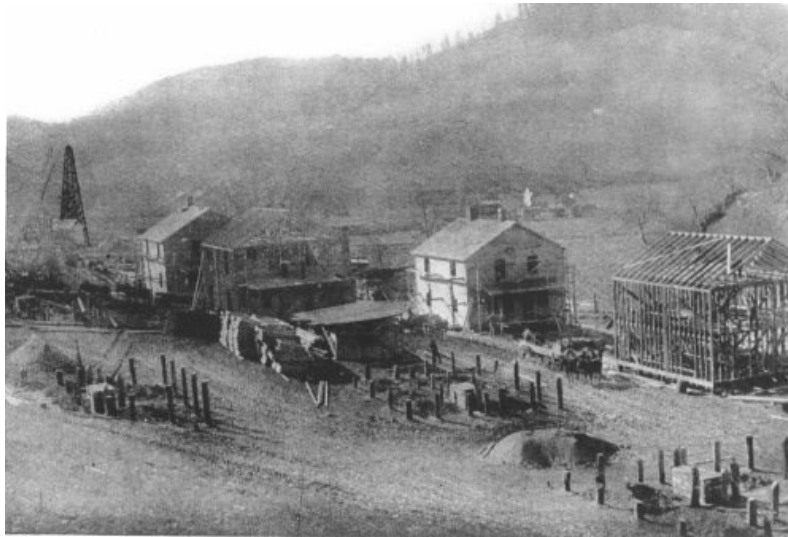
Picture 15. Town of Garrett about 1915, Source:
http://www.coaleducation.org/coalhistory/coaltowns/history_of_garrett.htm

Garrett, a coal company town in Kentucky at the confluence of KY 7/80 and the Right Fork of Beaver Creek, 13 miles south of Prestonsburg. Founded about 1914 by the Elk Horn Coal Company,

the town was named after its financial backers from Baltimore, the Garrett brothers, John and Robert, bankers by trade. This town serves as a prototype for many similarly funded and named coal camps developed in the early 20th century, when the coal industry in eastern Kentucky was attracting established banking interests who invested in mining concerns (http://www.coaleducation.org/coalhistory/coaltowns/history_of_garrett.htm).

09. Glo:

Picture 16. Glo, Source: http://www.coaleducation.org/coalhistory/coaltowns/glo.htm
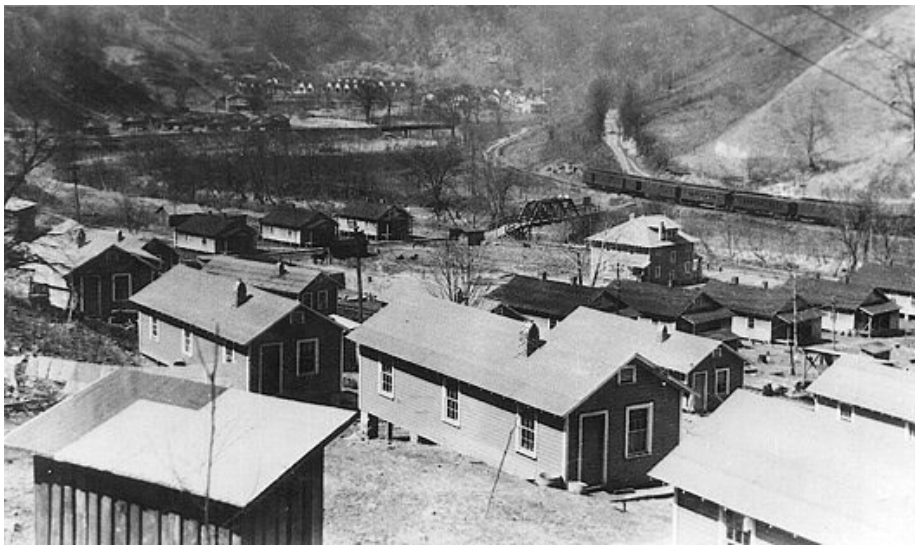
Glo is a community in southern Floyd County, located along the Right Fork of Beaver Creek. The community was named after the Glogora Coal Company that was in operation until 1949. Glo is now within the city limits of Wayland. The Glo Post Office was in operation from 1921 to 1955 (https://www.kyatlas.com/ky-glo.html).
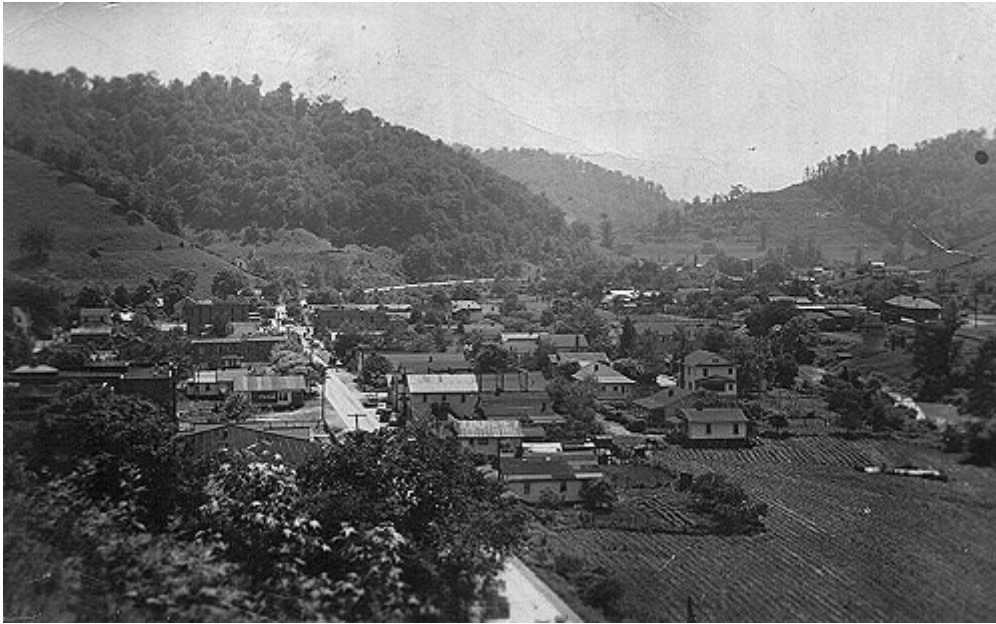
10. Martin:

Picture 17. Martin, Photo about 1940's, Source:
http://www.coaleducation.org/coalhistory/coaltowns/martin.htm

Martin is a town in Floyd County and is located about seven miles to the south of Prestonsburg at the mouth of Bucks Branch on Beaver Creek. It is a coal mining town from the early twentieth century and was originally called Bucks Branch, but had changed by about 1915 to Martin, named for Martin Van Allen, the local postmaster (https://en.wikipedia.org/wiki/Martin,_Kentucky).

The Bucks Branch Post Office began service in 1910, was changed to Smalley in 1913 for Smalley Crisp, a local landowner, and then to Martin in 1926. It had become a sixth-class town by incorporation in 1920. The population in the 2010 census was 634 (https://kyatlas.com/ky-martin.html).
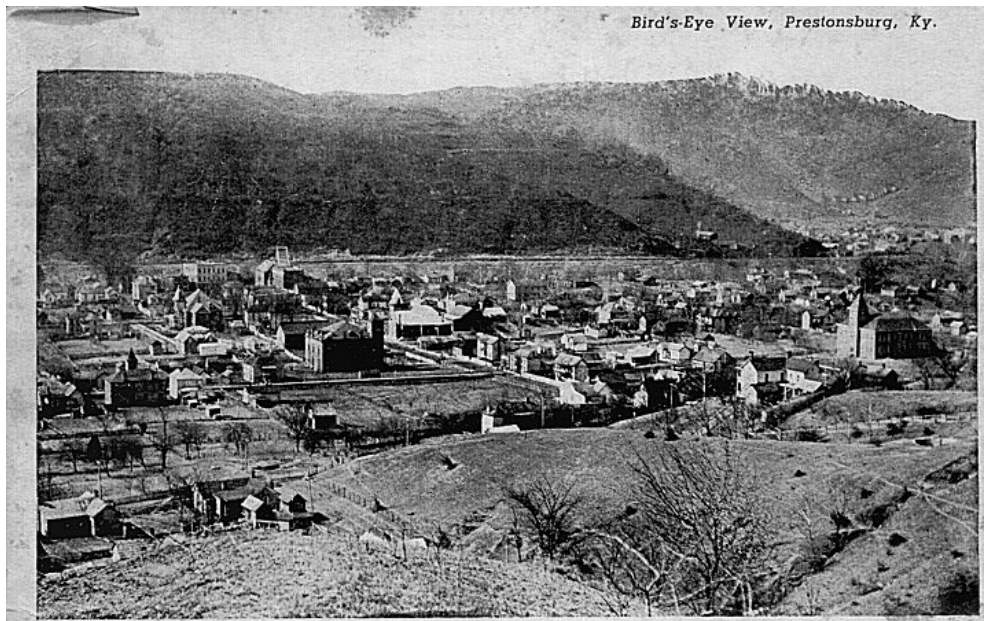
11. Prestonsburg:

Picture 18. Prestonsburg, Photo about 1910 Source:
http://www.coaleducation.org/coalhistory/coaltowns/prestonburg.htm

Prestonsburg is a town in Floyd County situated beside the Levisa Fork of the Big Sandy River. The town was settled in 1797 and was first known as Prestons Station, having been established by John Preston. When county government by Floyd was established in 1799, Prestons Station was renamed Prestonsburg. The first post office, established in 1816, was known as Floyd Court House. Population in 1990 was 3,558 (http://www.coaleducation.org/coalhistory/coaltowns/prestonburg.htm).
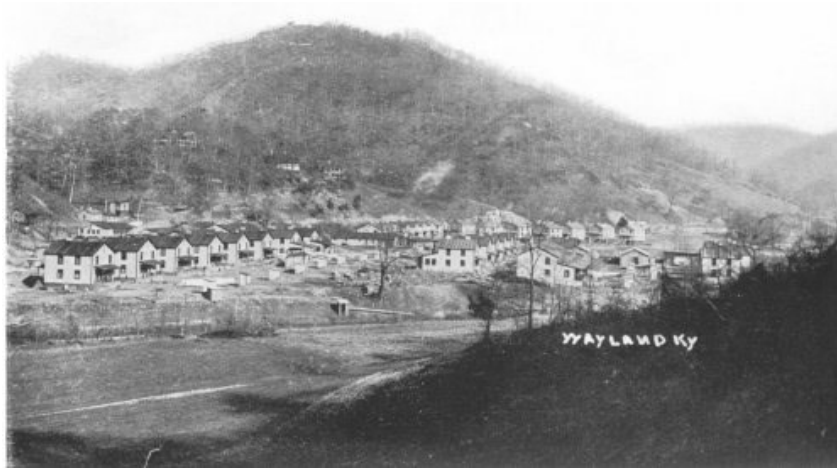
12. Wayland:

Picture 19. Wayland 1914, Source: http://www.coaleducation.org/coalhistory/coaltowns/wayland.htm

A Coal boom town the city was before World War II, West Virginia United States senator Clarence Wayland Watson (1864-1940), president of the Consolidation Coal Co. (1903-11 and 1919-28) established the city in 1913 when the Elk Horn Coal Company operated a mine and town on land purchased from Dan Martin; the town is named for Senator Watson. The town is located at the confluence of Steele and the Right Fork of Beaver Creeks, 14 mi south of Prestonsburg and at the junction of KY 7 and 1086 (http://www.coaleducation.org/coalhistory/coaltowns/wayland.htm).

13. Weeksbury:

Picture 20. Weeksbury, Photo 1930's Source:
http://www.coaleducation.org/coalhistory/coaltowns/weeksbury.htm

Weeksbury is a coal town in Floyd County, Kentucky, in the United States. It is an unincorporated community. Another name for it was Weeksburg (https://en.wikipedia.org/wiki/Weeksbury,_Kentucky).

14. Wheelwright:
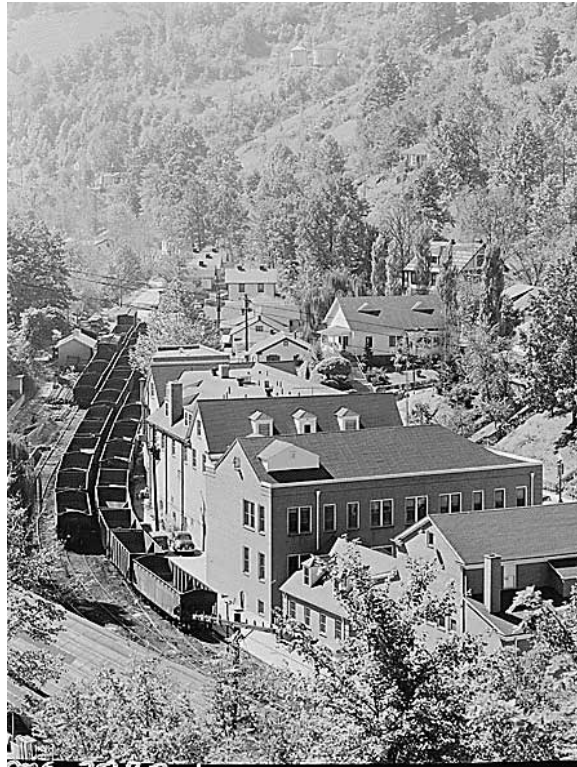
Picture 21. Wheelwright, Photo taken about 1946 Source:
http://www.coaleducation.org/coalhistory/coaltowns/wheelwright.htm

Wheelwright is a town situated in southern Floyd County on the Right Fork of Otter Creek. Incorporated in 1916 by the Elk Horn Coal Company, it was named in honor of Jere H. Wheelwright, president of the Consolidation Coal Company. The post office first operated in Wheelwright in 1916. The population of Wheelwright in 1990 was 72 (http://www.coaleducation.org/coalhistory/coaltowns/wheelwright.htm).

15. David:

Picture 22. The Coal Mining Town of David 1952, Source:
https://www.granger.com/results.asp?image=0640085&screenwidth=1024

David was a project of the Princess Elkhorn Coal Company which was established by David L. Francis, who was honored by the town being named after him the town of David was therefore originally conceived as a model coal camp and it lay in Floyd County, located about one hundred miles to the southeast of Lexington. The above amenities-a swimming pool, central water and sewer systems, and cable television service that was well ahead of its time-indicate the prime era of David. David was especially unique in the degree of community it cultivated-from famous children's choirs to such endeavors. However, with Princess-Elkhorn selling David in the 1960s, many of these facilities gradually started to decline in standards (https://mydavidschool.org/our-community-1).

16. Benham:

Picture 23. Benham, Source: http://www.coaleducation.org/coalhistory/coaltowns/benham.htm

Engineered like any company town, Benham was laid out to serve the functional needs of coal mining core industry that needed to supply coke coal to South Chicago Steel Works. The foundation came with the construction of 408 coal coking ovens enormous industrial venture mirroring the ambitions of the town's founders. There were the beginnings of rapid growth by 1911 as the first coal was being loaded onto boxcars at the L & N Railroad depot, heralding the community's rapid growth (http://www.coaleducation.org/coalhistory/coaltowns/benham.htm).

The town, Benham, had declined along with industry. From a plentiful beginning, by its bicentennial in 1980, its population was 936 and had decreased further by 2020 to 512. Out-migrated due to the transition away from coal being a primary industry and its impacts on the town's economic viability.

17. Lynch:

Picture 24. Lynch, Source: http://www.coaleducation.org/coalhistory/coaltowns/lynch.htm

The original town of Lynch had been established by the United States Coal & Coke Company buying out nearly 40,000 acres in the coal-rich Appalachian Mountains. Under the company's charge throughout the early 20th century, the town developed into the largest mining operation in the region and remained operational there for upwards of over 60 years. In the late 1940s, this company came into the hands of the United States Steel Corporation; finally, in 1984, the mining assets were sold to Ashland Coal Inc., which became known thereafter as the Apogee Coal Company (http://www.coaleducation.org/coalhistory/coaltowns/lynch.htm).

The layout of the town reflects its origins as a company town, with facilities and houses built for the miners and their families. Much of Lynch remains standing from its historic period as a company town and includes an old Post Office bank building and a General Mine Accounting Office Building facing Main Street. By 1963, Lynch was incorporated into a city. In relation to the foregoing case, the movement of the unincorporated community by the company to a city that enacted the Mayor-Council system of local government showed the progression of Lynch's dependence to autonomous governance (http://www.coaleducation.org/coalhistory/coaltowns/lynch.htm).

The peak of the Lynch population was during the boom years of coal mining, but since the slump in coal mining, the population of the town has proceeded to drain. Indeed, from the population falling from 1,614 in 1980 to 658 in 2020, one could think of a certain fable in terms of more general

economic changes within the coal field towns of America when these communities were troubled by much larger forces that have been set free as part of this decline.

18. Wallins Creek:

Wallins Creek's proximity to Harlan on Martin's Fork of the Clover Fork of the Cumberland River positioned it well in relation to coal mining. The superior coal to be found within Harlan County, in which Wallins Creek is located, has made the mining industries of the area even more respectable. With that, the Wallins Creek Coal Corporation took that reputation and, under the umbrella of the Cumberland Cannel Coal Co., established quite a successful mining operation that significantly affected the local economy and influenced the development of this community (http://www.coaleducation.org/coalhistory/coaltowns/wallinscreek.htm).

In the case of Wallins Creek, population figures really tell the story of a town that has seen better days: from 900 in 1930, down to a mere 212 in 2020. This decline depicts the broader economic shifts affecting the coal towns across America, especially during those times when large-scale activities had retarded in the coal industry, and other energies had begun to supplant coal across many industries.

19. Kenvir:

Picture 26. Kenvir, Source: https://en.wikipedia.org/wiki/Coal_mining_in_Kentucky

Kenvir is an unincorporated community and census-designated place in Harlan County, Kentucky. 297 people were living there at the 2010 census. It is eight miles west of Harlan, which is the county seat of Harlan County. The area is better known to locals as Black Mountain (https://en.wikipedia.org/wiki/Kenvir,_Kentucky).

20. Highsplint:

Picture 27. Highsplint, Source: https://www.themountaineagle.com/articles/the-story-of-highsplint-kentucky/

Seagraves Creek, later renamed Highsplint, was a notable coal town in Harlan County, Kentucky. It originated from the land that was previously owned by Isaac Creech and began with the Highsplint Coal Company being established in 1917. The town saw a large amount of coal mining activity beginning in earnest in March 1919.

The town grew around the coal industry; the Highsplint Coal Company was the center of its economy. Miners in Highsplint, like many miners from Appalachian coal towns, faced arduous working conditions. Miners in the early 20th century had long hours and low wages - about $2.00 a day. The town had fundamental services, such as a school, a movie theater, company store, and church that were funded by taking deductions from the miners' wages.

Highsplint was the scene of significant labor conflicts in the 1930s. This period of time in Harlan County was fraught with tension over unionization, wages, and management-labor relations. The miners against the wishes of coal company management, successfully established a local union which was recognized as Local Union 6074 by the United Mine Workers of America.

Over the years, the town gradually declined in fortune as the industries of coal began to decline. In 1961, the Highsplint Coal Company operations were closed, and further deteriorating conditions occurred due to change of hands in ownership. Major demolition would change the landscape of the town forever. By 1995, the remnants of its coal past were being preserved in the Cloverfork Museum, which was a former company building and sole reminder of the town's former days. Reunions were held to remember the town, its past, and its community (https://www.themountaineagle.com/articles/the-story-of-highsplint-kentucky/).

21. Van Lear:

Picture 28. Central Van Lear ca 1920, Source:
http://www.coaleducation.org/coalhistory/coaltowns/vanlear.htm

The rise of Van Lear within the early 20th century was indicative of a still greater developing factor across Appalachia with regard to the exploitation of the region's vast coal wealth. The town was built off these riches and experienced phenomenal growth a direct result from the high demand for coal, combined further by high influxes of workers and their families migrating for a better life (http://www.coaleducation.org/coalhistory/coaltowns/vanlear.htm).

At its peak in 1950, Van Lear had a population of 2,337, its peak year. From 1930, which had a population of 1,329, until 1950, was the heyday of Van Lear and reflects the town's importance as a center for coal mining in the area. In terms of population, in 1980, the town had shrunk to 2,035, and in 2020, the population had remarkably shrunk to 893. These projected figures give evidence of how the population, when the coal industry in the area began to decline, and most of the community opted to relocate to other areas, since their work in the coal fields similarly pitched.

22. Thealka:
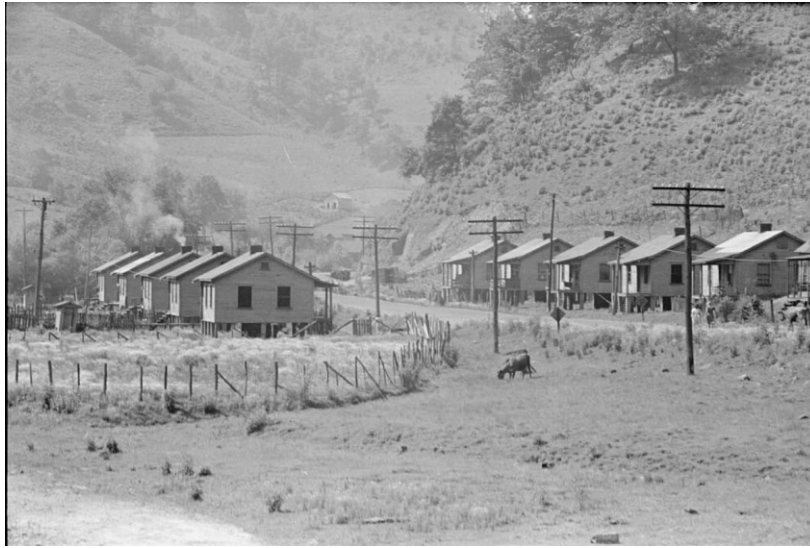
Picture 29. Coal camp run by the Northeast Coal Company in Thealka during the 40s. Source: https://www.kentuckyhistory.co/crps-coal-camp

Thealka is a geographic populated place located within the state of Kentucky. An unincorporated area, it is presently part of Johnson County. Originally founded in 1906 by the Northeast Coal Company, the community was named "Muddy Branch". In 1911 it was named for the recently landed steamboat bearing the colloquial "Thealka". Both the village and riverboat would come to carry the name in honor of John C.C. (https://en.wikipedia.org/wiki/Thealka,_Kentucky).

23. Barbourville:
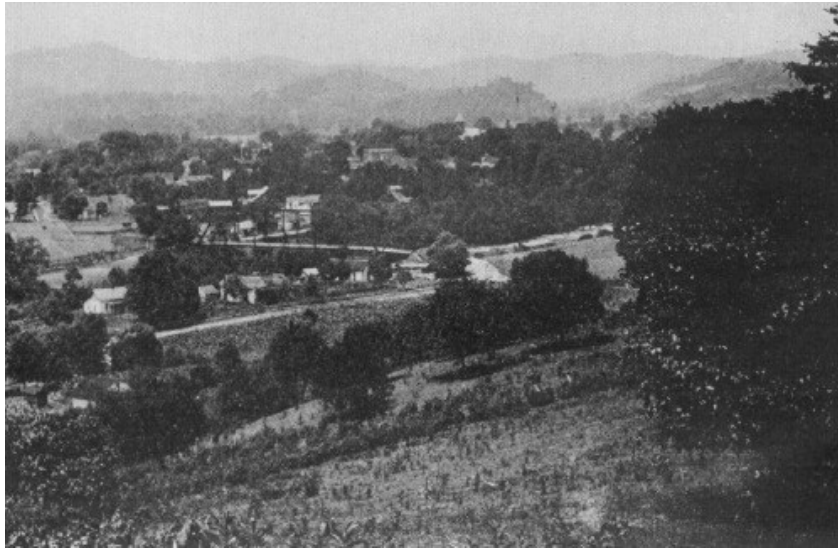
Picture 30. Barbourville, Source: http://www.coaleducation.org/coalhistory/coaltowns/barbourville.htm

This community is situated in the center of the Blue Gem coal field, on the upper Cumberland River. It serves as Knox, Kentucky's seat (http://www.coaleducation.org/coalhistory/coaltowns/barbourville.htm).

Based on population figures, the trend of growth for Barbourville seems to be very different from many commonly observed coal towns. From an initial count of 888 residents in 1930, by 1950, the population had grown to 949 people, which is a modest increase. This is very far from what obtains in other mining towns, whose population seemed to explode during the peak era of demand for coal, such as Helen. However, that may imply this town had a somewhat stable population. The population of this town grew from 888 in 1930 to 3333 in 1980 and peaked at 3589 in 2000 before tapering off to 3222 in 2020. Population metrics may be used to show that this area moved away from its initial coal-based economic foundation toward diversification and adaptation.

24. Burdine:

Picture 31. Town of Burdine, July 10, 1913, Source:
http://www.coaleducation.org/coalhistory/coaltowns/history_of_burdine.htm

This coal town is administered as part of Jenkins. However, the residents think of it as a distinct town, though Jenkins' post office, opened on January 25, 1898, 13 years before this one, has never had one. The town is named for Burdine Webb, carrier of the mail from Whitesburg (http://www.coaleducation.org/coalhistory/coaltowns/history_of_burdine.htm).

25. Dunham:

Picture 32. Dunham, Sept. 22, 1913, Source:
http://www.coaleducation.org/coalhistory/coaltowns/Dunham.htm

The community of Jenkins located two miles south of Dunham, Kentucky, shares a history with the former coal town that sits near the head of Elkhorn Creek. Founded in 1913 by Consolidation Coal Co., the town of Dunham has been transformed by the whims and innovations of the coal business from a quiet country village to a hotbed of coal mining activity (http://www.coaleducation.org/coalhistory/coaltowns/Dunham.htm).

26. Fleming-Neon:

Fleming-Neon, Kentucky, is the heavy reliance it has on the coal mining industry that developed in Eastern Kentucky in the early 20th century. In 1907, Elkhorn Coal Corporation established the city of Fleming-Neon named after the first president of Elkhorn Coal, George W. Fleming; the city grew up around the coal operation that connected it too much of Eastern Kentucky. With this industry comes the origination of the community, Fleming, and Chip, which was later renamed Neon. Fleming was the town associated with the specific coal mine; Chip was the trading center for surrounding coal towns. Chip became Neon, with the folklore behind how that name came to be indicating it was due to the call of a conductor for "Knee On" as people boarded the coal trains. This shows the secondary fixtures to the rail and coal industries that exist within the community (https://en.wikipedia.org/wiki/Fleming-Neon,_Kentucky).

The boom-and-bust cycle common to many coal towns is reflected in the population of the city. The population was 943 in 1950 but grew to 1,195 by 1980, a period of considerable growth despite the overall decline of the coal industry. In contrast, by 2000, the number of its population went down to 840 and furthermore to 548 in 2020, reflecting the declining coal that once drove the economy and broader shifts in the economies.

27. Haymond:
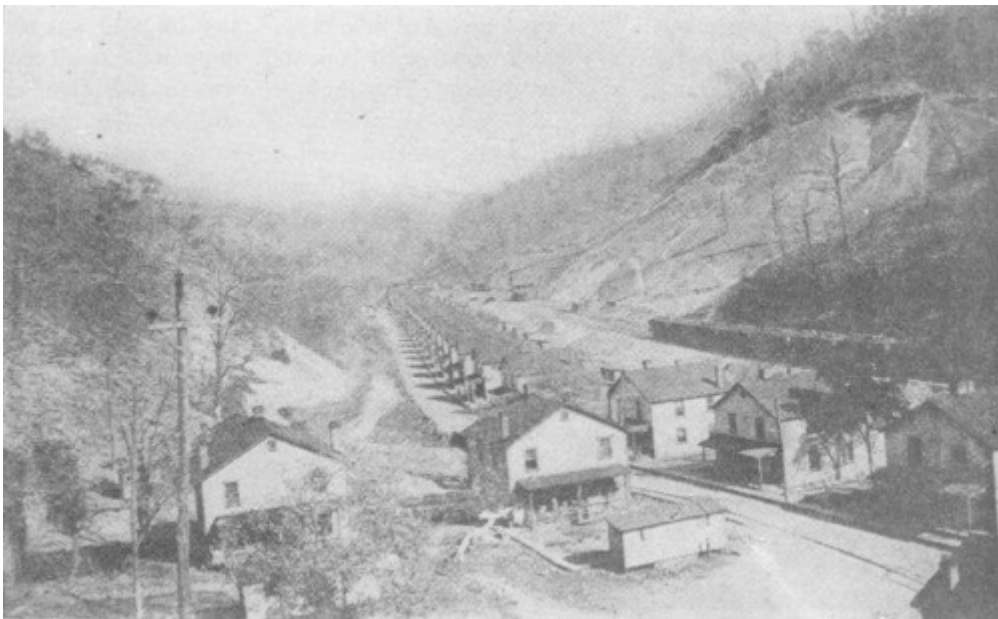
Picture 34. Haymond, Source: http://www.coaleducation.org/coalhistory/coaltowns/haymond.htm

The earliest houses constructed in the settlement are seen in the image above, which was shot looking east to west. A train carrying the first of millions of tons of coal from the 303 and 304 mines can be seen on the right. In the distance lies the 303 tipples. Eighty years of flowing have not altered the bed of the stream of water. Electricity arrived in Haymond at or about 1913, as seen by the power pole in the foreground. Jenkins' Powerhouse produced the electricity, which was most likely supplied to Elkhorn Coal Corp., who then sold it to their workers (http://www.coaleducation.org/coalhistory/coaltowns/haymond.htm).

28. Hemphill:

Picture 35. Town of Hemphill, abt. 1915, Source:
http://www.coaleducation.org/coalhistory/coaltowns/history_of_hemphill.htm

This coal town is located at the mouth of Quillen Fork of Yonts Fork, one mile north of Neon and 8 1/2 miles northeast of Whitesburg. Locally it is called Hemphill, but officially it is known as Jackhorn because this was the name under which the post office was established on November 17, 1916. The origin of the name Jackhorn and the reason the post office retains it is unknown. Elk Horn Coal Co. named the camp for Alexander Julian Hemphill (1856–1920) of Hemphill and Associates, a Wall Street firm that did financing for Elk Horn operations. The camp was named after Hemphill (http://www.coaleducation.org/coalhistory/coaltowns/history_of_hemphill.htm).

29. Jenkins:

Picture 36. A view of Main Street abt. 1920, Source:
http://www.coaleducation.org/coalhistory/coaltowns/jenkins.htm

Nestled on the sides of Pine Mountain in Letcher County, and deliberately located to take advantage of spent coal lands, Jenkins emerged through a complicated land assemblage by Consolidation Coal Company from Northern Coal and Coke Company in 1911, the latter having acquired the lands through consolidation of separate tracts over a decade. This paved the way for Jenkins, the gateway for Consolidation, to become one of the most respected longwall mining coal producers in the country (http://www.coaleducation.org/coalhistory/coaltowns/jenkins.htm).

The mining operations henceforth started and went the same path with the rise and fall of Jenkins's labor force, which peaked in 1930 at 8,465 that testified to the vibrancy of the coal industry then. This peak placed Jenkin in the category of a vibrant company town with all the trimmings associated with company-town living, including housing, schools, and recreational opportunities even as those were designed with miners and their family members in mind. However, steep population declines have haunted Jenkins for a very long period; most of the coal workers have been leaving the town, and as of 2020, Jenkins had only 1,902 residents. The majority of this population reduction can be attributed to demands for the re-ignition of coal, but it also has had its very own consequences on mining operations.

30. McRoberts:

**Picture 37. McRoberts, Source: http://www.coaleducation.org/coalhistory/coaltowns/mcroberts.htm**

This town in Kentucky was, in fact, named by a New York City banker by the name of Samuel McRoberts, who later became the president of the town site company. That gives an idea of the heavyweight corporate and financial affiliations. Besides involvement, McRoberts also was a banker, and his naming of the town after New York City is particularly noteworthy. McRoberts thought about the planned community from the beginning. The development corporation appeared to be willing to spare no expense in the necessary infrastructure to a coal mining community. Infrastructure was different from many other mines in that the development company came in and built electrical, water, schools, churches, houses, roads (http://www.coaleducation.org/coalhistory/coaltowns/mcroberts.htm).

McRoberts town, by 1914, was employing 1,600, and within a year and half, there was ~2,500 men. The rapid population growth from 1914-1916, indicates the importance McRoberts was going to have and eventually hold in the coal industry. The town also had sawmills and a brick plant within the town, this would elaborate upon the growth, but also the construction and how it all literally went on all the time in the town (http://www.coaleducation.org/coalhistory/coaltowns/mcroberts.htm).

The larger social, cultural and historical context in McRoberts, Kentucky, is not only about the work force, but the town site as a whole. McRoberts started out with the companies coming in to mine

coal, and the town site was at its largest population when coal production was largest. After the companies hit a rough patch, the town population decreased; again, like many other towns with economies driven by coal mining. In 1980, the town was still a big town at 1,106, but loss in population drops to 741 in 2020. At 741 in the 2020 census, the low population number, relative to a high population on record, in 1980, reflects the ongoing struggle the town has, in terms of economic development, from what was once a relatively large community.

31. Millstone:
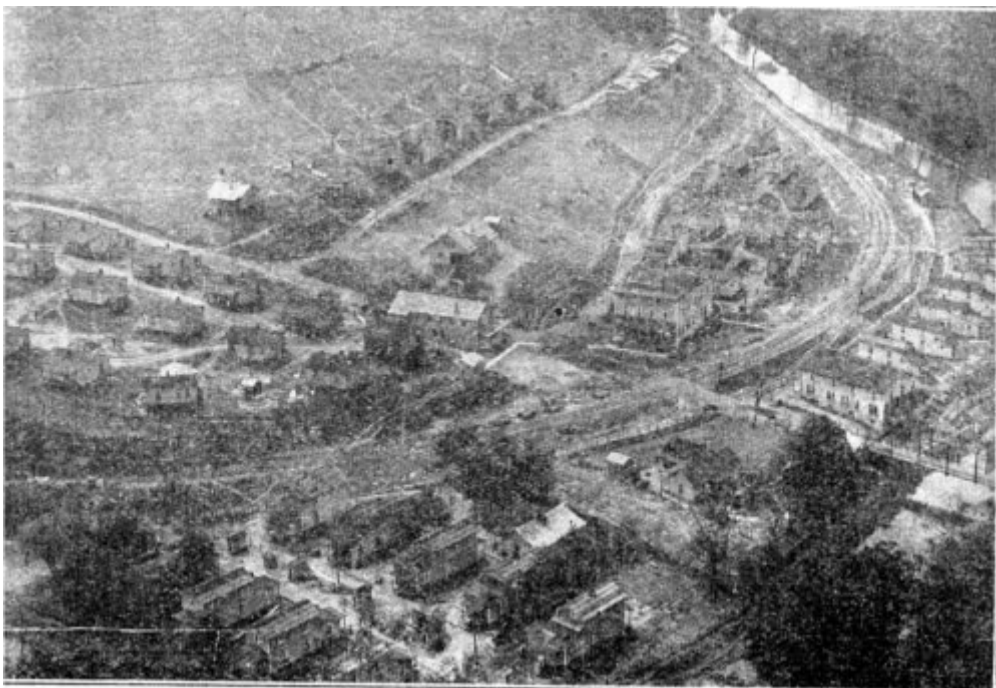
Picture 38. Mining Community of Millstone, Ky, Source:
http://www.coaleducation.org/coalhistory/coaltowns/millstone.htm

Milltown is a coal town located at the confluence of Millstone Creek and the North Fork of the Kentucky River, 4 1/2 miles northeast of Whitesburg. A post office was established in the immediate vicinity on December 17, 1878, under the name of Craftsville in honor of Enoch Craft, a Confederate veteran, and his family. The name was afterward changed to Millstone on 19 June 1918 by Nelson R. Craft. In that same year, the Southeast Coal Company built the camp (http://www.coaleducation.org/coalhistory/coaltowns/millstone.htm).

32. Seco:
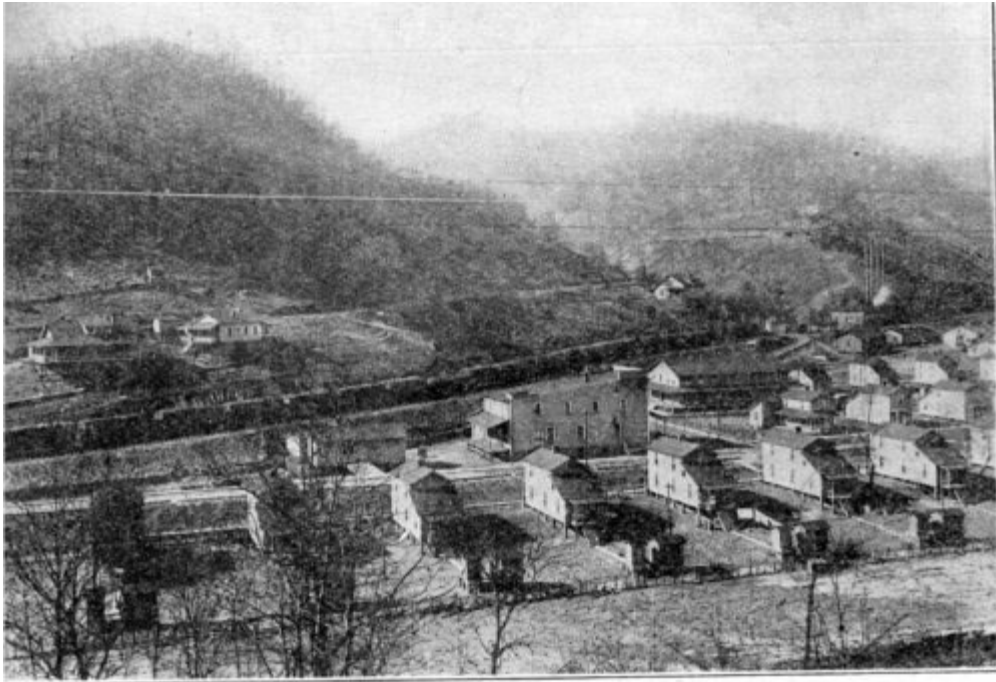
Picture 39. The mining town of Seco, KY. Southeast Coal Co. Operation, Source:
http://www.coaleducation.org/coalhistory/coaltowns/seco.htm

Carved in the Letcher County, mining brought into being Seco in 1915 with its founders A. D. Smith and Harry Laviers of the Southeast Coal Company. The small community was named after its parent company, Southeast Coal Company, and speaks to mid-20th-century industrial history related to coal mining in the United States (http://www.coaleducation.org/coalhistory/coaltowns/seco.htm).

33. Blackey:

Located in Letcher County, Blackey was created in the early 20th century, where there was significant development over its first decade of life due to its rich coal deposits and the excitement of the coal industry that accompanied them. Incorporated in 1915, and officially chartered in 1912, Blackey began an immediate explosion of activity with the completion of the Lexington and Eastern Railroad, allowing access to the area and thus the infrastructure required for coal mining. In 1917, the Blackey Coal Company employed dozens of miners, and housing its employees started officially the coal boom in this community. It changed Blackey from a "sleepy mountain town" to a lively modern town, reaching its peak population of 598 in 1950 (https://en.wikipedia.org/wiki/Blackey,_Kentucky).

From the high point of nearly 600 residents in 1950, Blackey's population has declined as the coal industry declined and disasters took their toll. By 2000, the population had drastically fallen to 153, and by 2020, the population had fallen to 105 reflecting the challenges the region continues to face.

34. Barthell:

Picture 40. Barthell, Source: http://www.coaleducation.org/coalhistory/coaltowns/barthell.htm

Barthell Mining Camp of Kentucky is one of the very few pieces of early 20th-century coal mining history that is unique. Constructed by J.S. Stearns in 1902, Barthell was the very first mining camp established by Stearns after he ventured into the area and now has been remodeled into a brawl tourist attraction. The restoration and revitalization of the site by Mr. Harold "Sonny" Koger and his son, Harold Dwight Koger, gave new life to the historical site, turning it into a very distinctive destination point that allows any visitor interested in the heritage of the American coal industry to see what a mine looks like (http://www.coaleducation.org/coalhistory/coaltowns/barthell.htm).
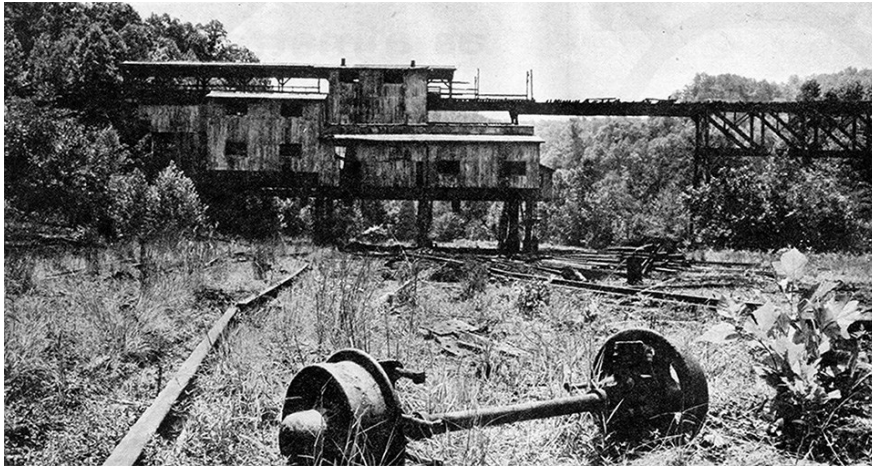
35. Stearns:

Picture 41. Stearns, Source: https://outdoorventure.com/stearns-kentucky

The Stearns Coal and Lumber Company, later to be called the Stearns Company, built the town of Stearns as the center of a logging and mining empire that would, at its peak in the 1920s, control over 200 square miles, build the Kentucky & Tennessee Railway and the world's first all-electric sawmill, and employ over 2,200 people living and working in at least 18 coal camps. Nearly all of the structures in Stearns were painted white with green trim and included homes that were built in both American foursquare and bungalow styles, a freight depot, office building, pool hall, theater, the famous Stearns hotel and company store where residents could purchase almost anything they needed with company issued money, called scrip. Also supplied was water, electricity, steam heat, tennis courts and municipal water, along with a golf course and baseball field (https://outdoorventure.com/stearns-kentucky).

Starting in the 1950s, the coal mines played out and closed, one by one, and the coal camps were abandoned. The Blue Diamond Coal Co. purchased the majority of the property from the Stearns Coal & Lumber Co. by 1976, and the final coal train from the Blue Diamond mines departed in 1987. A grand era had come to an end, but another was beginning – manufacturing (https://outdoorventure.com/stearns-kentucky).

36. Blue Heron (Mine 18):

Picture 42. Blue Heron, Source: https://www.nps.gov/biso/learn/historyculture/blueheron.htm

Blue Heron, more commonly referred to as Mine 18, was a coal mining community that was abandoned following the closings of the mines by the Stearns Coal and Lumber Company. From 1937 until December of 1962, the community of Blue Heron was in full operation until the operations were ceased due to the operating costs being too high to continue to operate the mines. During this period, the community continued to thrive with hundreds of residents working and residing along the banks of the Big South Fork River (https://www.nps.gov/biso/learn/historyculture/blueheron.htm).

37. Elkhorn City:

Picture 43. Elkhorn City, Source: https://pikecountykyhistoricalsociety.com/elkhorn-city-ky/

Daniel Boone's exploration of this area in 1767–1768 provided a significant landmark for early frontier history in the State of Kentucky. The origin of "Elkhorn"-as it was originally known, due to the discovery of an elk's horn-was intrinsically linked with the natural environment. In 1882, the name was changed to "Praise", named in honor of a singular season of religious awakening with the evangelist George O. Barnes. It wasn't until the beginning of the 20th century, after there was a stop built for the C&O Railroad, that the town went with the name Elkhorn City (https://en.wikipedia.org/wiki/Elkhorn_City,_Kentucky).

The ups and downs over the years in the area's economy are mirrored in the population of Elkhorn City: from 996 in 1930, a peak reached 1,446 in 1980 and was maintained in 2000. In 2020, it reduced to 1,035 likely a reflection of the broader regional and economic change experienced by small towns in America.

38. Stone:

Picture 44. Stone, Source: https://pikecountykyhistoricalsociety.com/stone-ky/
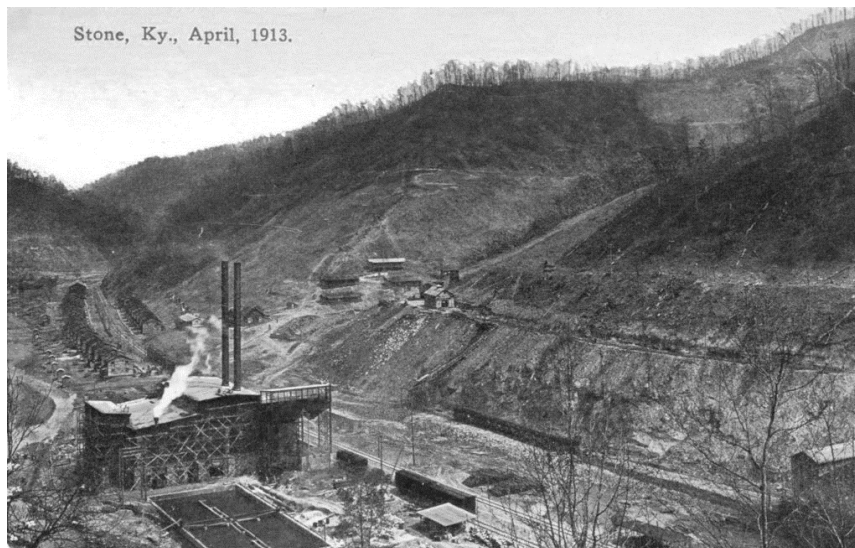
A small unincorporated community in Pike County lying near the Tug Fork and Pond Creek, Stone, Kentucky, has a long-standing history in the coal mining industry. Founded in 1912, it was named after Galen Stone, chairman of the Pond Creek Coal Company, following the classic model of an American coal town. The changes in history and economics that defined the era of coal mining in Appalachia are etched into Stone just as they are throughout most other communities in the region (https://en.wikipedia.org/wiki/Stone,_Kentucky).

39. Hardburly:
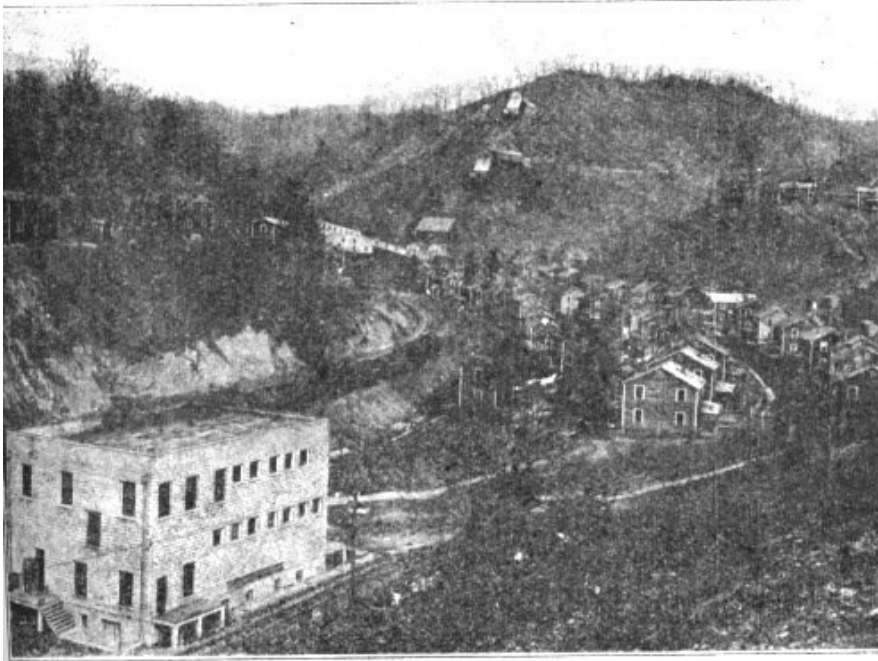
Picture 45. View of part of the mining camp 1923, Source:
http://www.coaleducation.org/coalhistory/coaltowns/hardburly.htm

Hardburly in Appalachia's coal-producing region near Hazard, tells a story of boom and bust often associated with American coal towns. The town was founded in 1931 and named for the Hardy-Burlingham Mining Co., and thus represents the close-knit relationship between a community, and the business built around it (http://www.coaleducation.org/coalhistory/coaltowns/hardburly.htm).

40. Hazard:

Picture 46. City of Hazard, Source: https://hazardky.gov/history/

Named after a hero of the War of 1812, Commodore Oliver Hazard Perry, Hazard was the first important military, administrative, and commercial center in Perry County. Amenably situated over a hundred years away from larger markets both literally and economically the railroad finally reached the town in 1912.

By the 20th century, Hazard's companies, such as Hazard-Dean Coal Co., had helped the town make itself an important player in the regional coal industry. During the mid-20th-century coal boom, which is considered to have reached its peak in the early part of this century, Hazard seemed to enjoy a great deal of economic prosperity and population growth. Similar to other parts of Eastern Kentucky, conditions here were never ideal during the Great Depression, and falling demand for coal certainly didn't help matters (https://en.wikipedia.org/wiki/Hazard,_Kentucky).

The US Census of 1930 recorded 7,021 residents. From 1950 onward, however, the town's population started to fluctuate with the economic changes. The population fell slightly in 1950 to 6,985, a decline which accelerated to 2000 at 4,806. As the coal jobs went down, so did the population. The 2020 population, however, seemed to rise back to 5,236 residents an indication that some economic rebounding and diversification was going on.
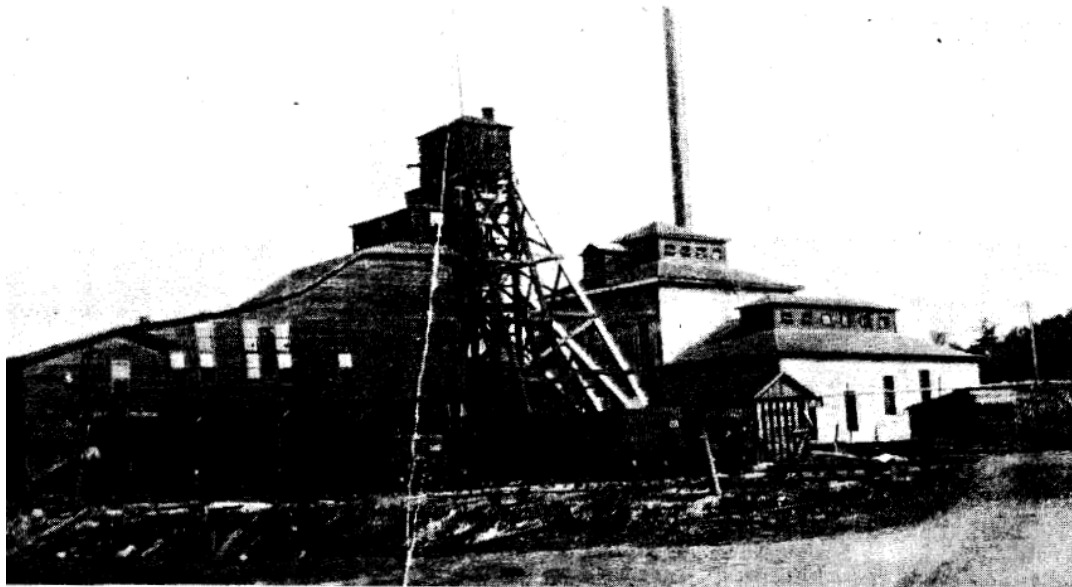
41. Red Ash:

Picture 47. Proctor Coal Co. mining camp at Red Ash, KY abt. 1920's, Source:
http://www.coaleducation.org/coalhistory/coaltowns/redash.htm

Red Ash was a coal town and unincorporated settlement in Whitley County, Kentucky, in the United States (https://en.wikipedia.org/wiki/Red_Ash_Coal_Camp,_Kentucky).

42. Browder

Picture 48. The Browder mine of the Wickliffe Coal Company about 1935, Source: Department of Library Special Collections

Browder is an unincorporated community in Muhlenberg County. The most tragic incident in the historical mining past of Muhlenberg County was the explosion on February 1, 1910, in which thirty-five men were either killed or fatally injured. The explosion was heard throughout the mine at Browder (https://jlandersonfamily.website/2nd%20Edition%20Pages/Things/Old%20Mines%20and%20Tragic%20Tales.htm).

43. Central City:

Picture 49. Central City, Source: https://it.wikipedia.org/wiki/Central_City_(Kentucky)

Located astride two of the most significant historic railroad corridors through Kentucky, the L and N; and the Illinois Central, it was during the late 19th and early 20th centuries that central city developed into the country's critical regional center. The town was teeming with train yards and roundhouses, and all this was physically accented by a grand train station that firmly indicated that this was a town moving forward. As it transpired, it was the coal industry and, later, the Central Coal and Iron Company, that would come to dominate the town, but such dominance was not without challenge: A tragedy took place in 1912 as an explosion killed five citizens (https://en.wikipedia.org/wiki/Central_City,_Kentucky).

The population at this town has been rather stable, reaching its height of nearly 5,900 in the year 2000, and just shaving off a little to about 5,800 by the year 2020, in spite of major regional and national trends that point to the decline in the role of coal as a key employer. In this case, stability is a good sign of diversification of economies and an ability to adapt to the continuous industrial contexts that change.

44. Drakesboro:
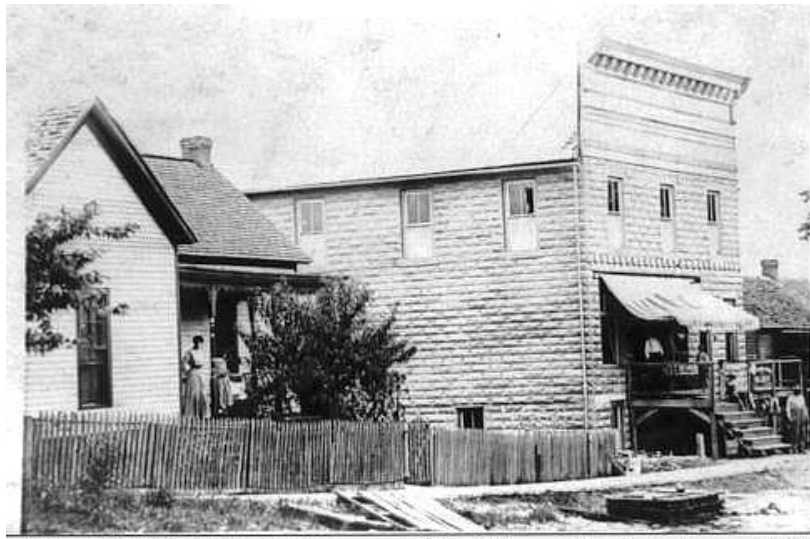
Circa 1930: Black Diamond Co. Store, Drakesboro, KY

Picture 50. Drakesboro, Source: http://www.coaleducation.org/coalhistory/coaltowns/drakesboro.htm

Drakesboro, a small town in Muhlenberg County, Kentucky, represents a window into the evolving nature of rural towns in America. While information on Drakesboro's history is sparse, patterns in population data provide an indication of a town in decline, a narrative that is common to many towns as industries shift locally and economic trends change (https://en.wikipedia.org/wiki/Drakesboro,_Kentucky).

Over the years, the population of Drakesboro has fallen. While in 1980 Drakesboro had a population of 798, this number fell to 627 by 2000, and further to 481 by 2020. The drop in population could be a reflection of a number of challenges, like a lack of jobs, the movement of younger generations to urban locations, and the turbulence that goes with the loss of industries that supported the growth of towns like Drakesboro.

45. Graham:

VIEW OF GRAHAM, LOOKING NORTH EAST
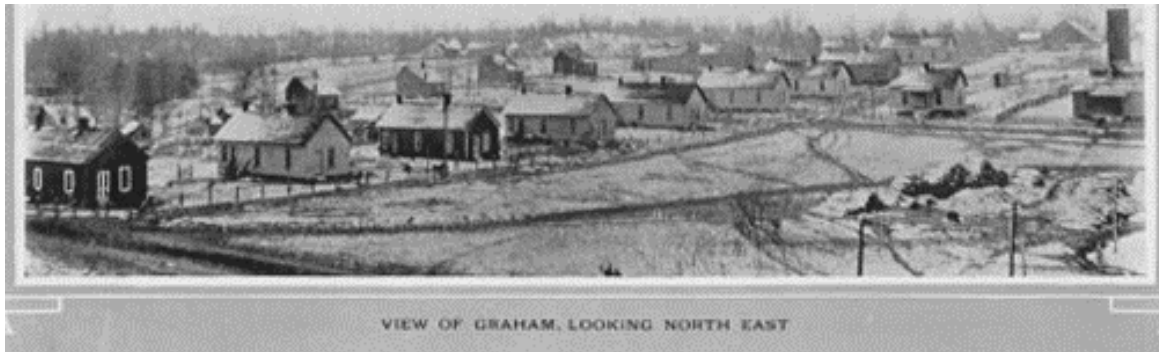
Picture 51. Graham 1900's, Source: http://www.coaleducation.org/coalhistory/coaltowns/graham.htm

In 1904, the residents of the community acquired mail service when a post office was established. Graham was established around a coal town that had been created by the W.G. Duncan Coal Company, owned by William Graham Duncan who was a Scot-American for whom the town was named after (https://en.wikipedia.org/wiki/Graham,_Kentucky).

46. Greenville:

Picture 52. Greenville Main Street, Abt. 1920's, Source:
http://www.coaleducation.org/coalhistory/coaltowns/greenville.htm

Greenville, offers an example of a community that combines historical continuity with contemporary change. Established on land granted by William Campbell in 1799, and likely named in honor of Revolutionary War general Nathanael Greene, Greenville has been the county seat since formally established by the state legislature in 1812 and chartered as a city in 1848.

The growth in Greenville's population has seen many ups and downs throughout time, starting with only 1,486 residents in 1930, the population sank to 1,069 by 1950. From the latter half of the 20th century, however, the population drastically increased a sizable change to 4,631 by the 1980s. During the following decades, the growth rate was reduced, down to 4,398 in the year 2000, with a slight increase to 4,492 by 2020. The variations in population are symbolic of periods of successes and challenges over time as Greenville has adjusted to economic, demographic, and land use shifts as a community (https://en.wikipedia.org/wiki/Greenville,_Kentucky).

47. Luzerne:

Church---Luzerne

Picture 53. Luzerne Church, Source:
https://www.flickr.com/photos/140717204@N05/37777561201/in/photostream/

Luzerne is a small unincorporated community that is located in Muhlenberg County within the state of Kentucky in the United States. Luzerne was named after the post office established here in 1901 and operated through 1951 (https://en.wikipedia.org/wiki/Luzerne,_Kentucky).

48. Paradise

Picture 54. Paradise 1900, Source: http://www.coaleducation.org/coalhistory/coaltowns/paradise.htm

Located in Muhlenberg County, Kentucky, near Greenville, the town of Paradise was first known as Stom's Landing, a cordwood and tobacco stop on the Green River. This town is thought to have been named "Monterey" at some point in its history. The town's current name "Paradise" may have come from the settlers who might have felt the area was really a paradise(n.d.). This settlement was named Paradise sometime during the early 19th century, but the reason for the name is not known and the name is thought to be descriptive, based on the people in the town who first landed there in about 1797. The early settlers most likely considered the place beautiful, and the area is rich with natural resources such as the Green and Green Rivers, coal, timber, and wildlife. Paradise was known for coal mining; the first coal mining in this area occurred in the 1820s. Once the coal companies left the area, the town began shrinking and the post office closed in March 1967. During the time of the coal mining, Paradise lived through many Green River floods (https://en.wikipedia.org/wiki/Paradise,_Kentucky).

49. Providence:
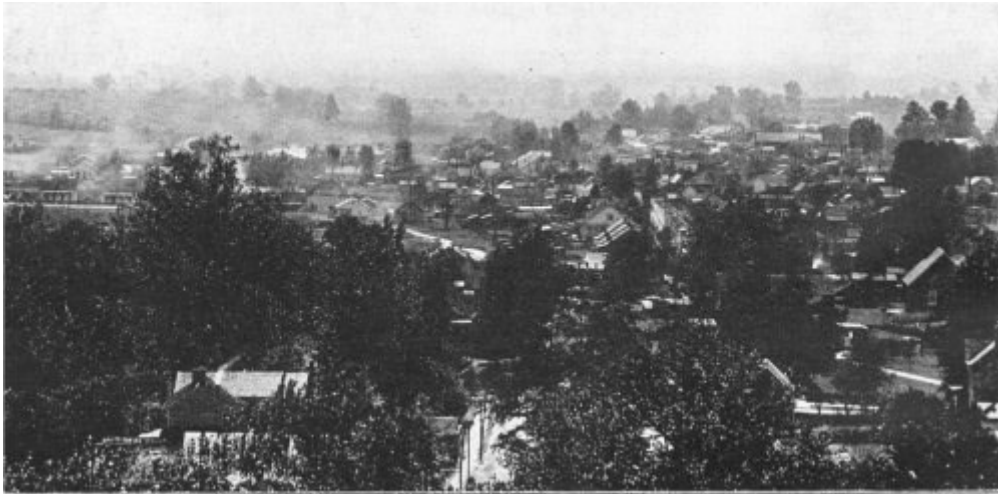
Picture 55. City of Providence 1924, view is to the southeast, Source:
**http://www.coaleducation.org/coalhistory/coaltowns/providence.htm**

Providence is set amidst the heart of the Western coal field and steeped in rich coal mining history beginning with Richard Savage in 1820. Originally, Richard Savage had named the community Savageville in honor of the founder and tightly knit founding community. It would be renamed Providence in 1828 upon the establishment of the post office. The town of Providence grew alongside the coal industry within the Western Coal Field throughout its early years. At the beginning of the 1900s, Providence rapidly expanded and developed, particularly in the coal mining industry. During this period in history, at the turn of the century, Providence became one of the major settlements in the Western coal fields and one of the most active towns engaged in the mining of coal during the first two decades of the 1900s. It was regionally significant in that its proximity to the county line gave it a major strategic location for coal extraction and transportation. Providence indeed saw remarkable growth due to its region's excellent coal industry (http://www.coaleducation.org/coalhistory/coaltowns/providence.htm).

Providence peaked in the '80s at a population of 4,434 and has seen a subsequent decline due to the macrotrends of economic fallout and social disintegration that have affected coal towns nationwide. By 2020, their population had declined to just 2,892.

6.4 Visualization with the Digital Story Map[2]

This section provides an example of how the digital Story Map uses interactive visualizations with narrative integration to present comprehensive data, from coal mining covering most areas of the USA to specifics in areas of Kentucky. A combination of geographical data found in Figure 12 the Map of Coal Towns/Coal Company Towns, combined with detailed historical narratives, transformed this map into an interactive platform for understanding both the impact and evolution that has or will take place in coal company towns.
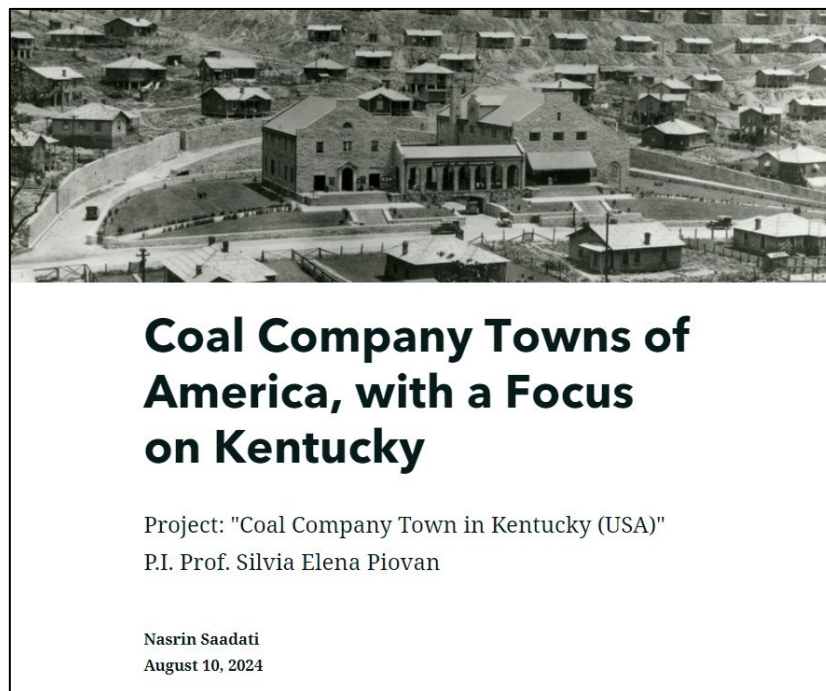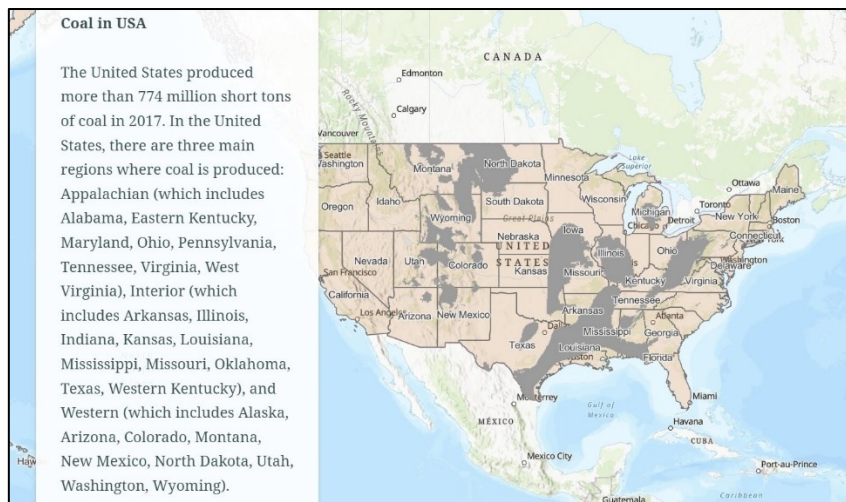

Picture 56. Screenshot of Story Map, Coal Company Towns of America with a Focus on Kentucky. Credit: Author

Nation-wide coal basin visualization: This Story Map introduces an interactive map of major coal basins sprinkled across the United States and contextualizes the deeper dive into Kentucky's particular role.

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[2] Coal Company Towns of America: A Focus on Kentucky, Story Map.
Accessible at: https://arcg.is/1H10C90.

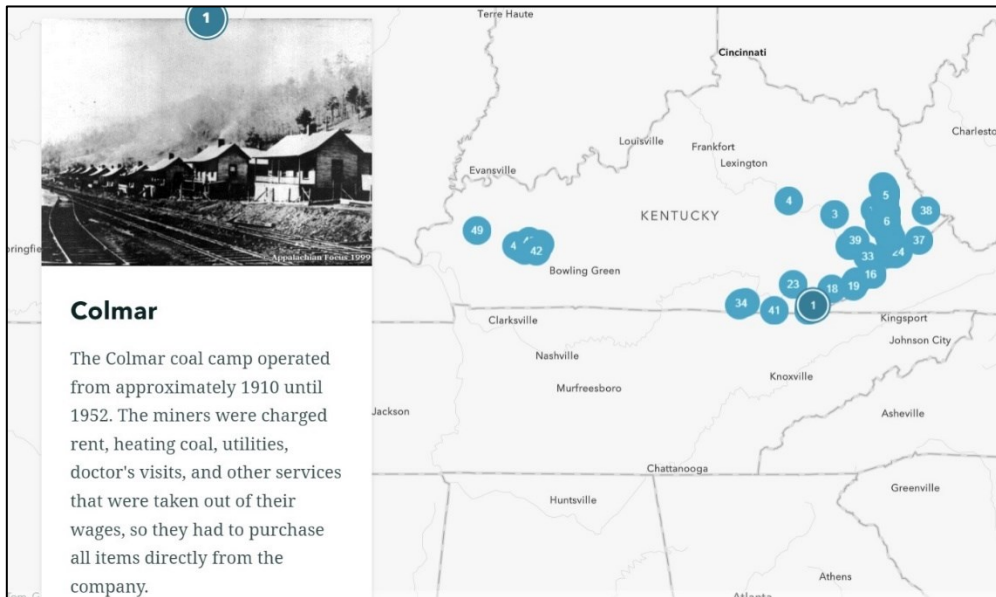**Picture 57. Screenshot of Story map, Map of Major Coal Basins in the United States. Credit: Author**

Focused Visualization on Kentucky as a Coal State: Complementing the national perspective with the detailed map of coal portals in Kentucky, the density of the coal infrastructure across this state is underlined. The map points out the actual locations of coal portals in an effective way, reinstating Kentucky's important position in the national coal story.
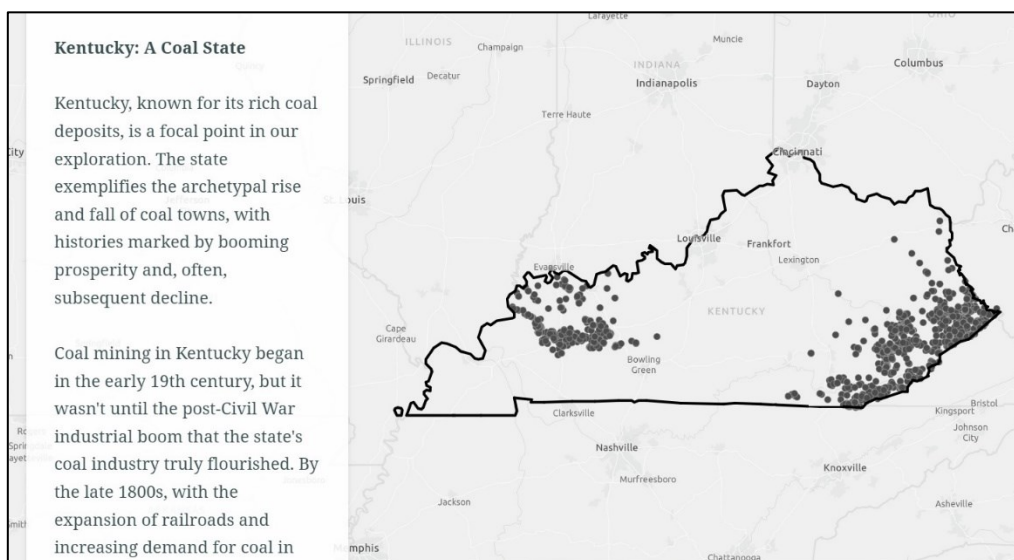
Picture 58. Screenshot of Story map, Map of Coal Portals in Kentucky. Credit: Author

Interactive Integration of Map of Coal Towns/Coal Company Towns and Historical Narratives: Figure 12 is the geographic backbone of the Story Map, which places visually each coal town in the state. This map will allow users to geographically place the specific locations of the coal towns in the wider profile of coal-mining activities within the state. Clicking on any town in Figure 12 brings up details about that location, including its operational history, and population over time. This integration

embeds the geographic setup with the rich historical narratives that outline the growing, flourishing, and often the decline of those towns.

Picture 59. Screenshot of Story map, Map of Coal Towns and Coal Company Towns in Kentucky. Credit: Author

7 Discussion

7.1 Brief Summary of Key Findings

Demographic and development study of company coal towns in Kentucky has brought out several critical pointers:

Demographic Trends: Using the demographic trends from the U.S. census and demographic information related to these towns, most coal company-owned towns, with few exceptions, evidenced a long-term population decline. The correlation between the presence of a coal company within the town and its eventual population depletion throughout the years is strictly one of logic, and it is a relation which is represented in the Census data we have for one century.

Economic Impact: Evidence from economic data showed that the towns whose economy is intertwined with employment in the coal industry have been hit harder economically by this downturn compared to towns whose economies have become more diversified. This conclusion also speaks to the economic vulnerability of single-industry towns, such as those under examination here, during large global economic shifts and declines in specific industries. This is even more significant if it turns out the coal industry does not come back into the region as a major employer.

Resilience: Some communities bucked the trend of decline and successfully stabilized or modestly grew their populations. Often, this resilience stemmed from local success in economic diversification, such as attracting new industries or developing revitalization programs.

Community Response: While the social impact category of the study is very broad and was relevant across all three themes, we include it in this section because as the demography in these towns' shifts, so too does the community structure and public goods and services where community engagement also declined, and populations started to decline. And when we see fewer people, we often saw decreased provision of public services, which in turn created challenges to robust and meaningful renewal activities in some towns.

It therefore tells a richer and textured story that engages with and interprets history, along with economic and demographic changes throughout the existence of the town. Bringing to light far-reaching evidence of the manner in which economic change interacts with demographic change in considering the future of coal company towns, it acknowledges and pays attention to ways the community overcame in some cases historical barriers to entry alongside drastic processes of resilience and economic revitalization.

7.2 Interpretation of Results

The findings of this research offer a lot about the historical and contemporary trajectories of coal company towns in Kentucky, as well as many of the economic, social, and industrial development factors that condition their course.

Economic Dependencies and Vulnerabilities: Much of these significant declines in population reflect broader economic downturns seen within the coal economy, a demonstration of direct dependence on coal by these towns. This made them particularly vulnerable to any external economic conditions that may affect them, such as shifts in international energy demand, or environmental regulations which casual the downturn and lack of coal with a fall in demand.

Resilience and Diversification: The surprising resilience in some towns may imply that economic transformation and adaptation is possible. In fact, resilience is more frequent in those towns that are pursuing diversification by means of efforts toward moving away from a mono industrial economy into a mixed economy capable of producing more sources of economic activity, such as tourism, retail, or small-scale manufacturing. Some of them enable the towns to survive, not be real ghost towns, and further turn into more stable and diversified communities.

Socio-Economic Impacts: This process significantly impacts socio-economic aspects, ranging from schools and public services to housing markets and community morale. It becomes clear that in towns where population loss is the greatest, a visible decline in public infrastructure and also an active decrease in group cohesion among various social groups can be seen. Thus, revitalization would be more difficult to achieve.

Industry Influences: Coal was not just determining the economic geography but also an essential feature of the historic and cultural as well as social identity of the towns. Just as the industry has shrunk in importance, so does that identify, while the work of shaping it back is urgent in a time of economic and demographic change. Understanding the conditions in the communities is very important when trying to shape a policy that meets important economic and social needs. The findings position the coal-need towns as complex systems where economic health, social health, and functionality of the community are closely interconnected.

7.3 Broader Context

The discernible demographic and economic trends in the coal company towns of Kentucky are a part of the greater story of American industrialization, especially in the energy industry represented

here by coal mining. This section puts into greater historical and comparative perspective the particular findings that emerge from this study.

Kentucky has played an influential role in American coal production that has been a vital part of the state's economy for many years. In many ways, the rise and decline of coal company towns in the state reflect the ups and downs of coal mining on a national scale. These are manifestations of broader economic shifts, including the shift to alternative sources of energy, and changes in the environmental regulations that have reshaped the coal industry over the last few decades. The story of Kentucky's coal company towns is not unique.

Prosperity and decline, and diversification strategies are some of the themes in our study of other coal-dependent regions are notably those. However, the strategies of decline and diversification details that followed, and their implication for the post coal industry situation, would vary within local policy variations, community capacity, and geographic and economic conditions particular to a location. Shifting away from coal as a major source of energy pits a worldwide movement toward greener, less hazardous ways of energy production. Still, though much is a movement that opens up opportunities for regions across the world that normally would have a heavy reliance on coal mining, it's also one with its own set of challenges.

Drawing parallels between Kentucky's responses to coal industry transition and other areas provides valuable lessons for how a range of economic strategies most notably, government policy and community-led initiatives influence the landscape of transition initiatives. Transitioning away from coal mining is not only an economic process; it has important cultural and social resonance for these communities, relying on coal for decades. As soon as coal is no longer a part of towns and regions, these communities lose part of their shared cultural history, which deeply touches not only basically the case of community but also individual identity. These broader conversations around the socio-cultural impacts of deindustrialization represent real international concerns.

7.4 Implications

One broad implication of this research focuses on the situation in Kentucky's coal company towns, sketching out potential future paths for these towns. This study has relevance at a local level and to broader policy discussions.

The necessity of economic diversification cannot be overstated. Towns that are undertaking diversification are exhibiting signs of resilience and modestly increasing population or, at minimum, slowing the rate of decline. This might also suggest that other towns could benefit from pursuing a

similar strategy, whether that involves investing in the tourism sector, technology sectors, or the green energy and renewable sectors.

As the town's population decline, providing services is becoming increasingly challenging. Communities will have to do strategic planning to ensure adequate services for the remaining residents. These are healthcare, education, public safety all services that will be required in the community to sustain a healthy quality of life, and hopefully attract new residents and businesses to the community.

Possibility of Renewal: The resilience of some towns might suggest that renewal is possible with the appropriate mix of policy support, community involvement, and investment. These towns may provide a model for communities where such programs are needed.

Past experiences have shown that, without major revisions in economic and community strategies, most coal towns will continue to decline into the future. The continued decline will probably contribute to further financial hardship, additional population loss, and possibly cause some communities to dissolve.

Policy Interventions: The research points to the importance of targeted policy interventions aimed at supporting economic diversification, infrastructural development, and communities. Both State and Federal governments have roles in the transitioning of communities.

One way to move forward from a coal town economic reliance is to have financial planning that is looked at from a holistic perspective. To think of economic planning as fostering growth and to have that growth led by local communities and not just market forces or environments. We need financial planning that is focused on creating more sustainable and resilient communities that are effective and will flourish post-coal.

Cultural preservation Preserving the cultural heritage within the coal towns, while also paving the way for new identities can foster a sense of community morale and community coherence. Initiatives that recognize the history of coal extraction for these towns and that can contribute to developing new, future-oriented community narratives.

Training and education: Training and education opportunities directed at new industries will continue to benefit transitioning workers and their families. Also, it will be important to create opportunities that are available within their community.

7.5 Limitations of the Study

The results in this study were useful after an extensive and intensive analysis. However, the following limitations should be considered. Items identified as limits affect data interpretation and the conclusion that may derive from the data.

Incomplete Historical Record: Demographic information for many coal towns is scant, hence limiting depth and accuracy of findings. Data gaps in any period or town in general preclude attempts to completely understand the wide reach of some historical trends or the subtle evolutions of these communities.

Relying on Secondary Data: Most of the studies were pegged on secondary data. Since these data do not always take local contexts into consideration, reliance on secondary data has implications for the depth of context in informing our conclusion. It also denied any opportunity for qualitative research that could better help us account for the social dynamics that might cause these patterns described here.

Risk of Generalization: Generalizing findings can mask local, place-specific elements that influence those outcomes and lead to inaccuracies in the process. The generalization of findings from data implies that implications for practice cannot fully represent local variation.

Limited International Data: This could be done only in a basic way if we have internationally comparable data on coal company towns. We rely on some international data but not comprehensive data, which limits the possibilities of contextualizing the data in a global framework.

Limited Scope: Since the case study was confined to coal company towns in Kentucky, this may not be truly representative with regard to coal company towns throughout the US or internationally. The study carried out in Kentucky was very context-specific and did not involve all of the coal towns in the US or internationally.

7.6 Future Research Directions

The present study underlines a number of promising directions for further research that contribute to an advanced understanding of coal company towns and allow for the consolidation of approaches to their development. Further extensions of the research will be discussed in this paper, in view of the work completed within the framework of this study.

Longer-term studies of change, in response to specific economic and policy interventions in particular, are also future research directions that could help provide more information about the success of diversification strategies and community revitalization over time.

In this respect, the future researcher might continue to develop a wider understanding of the global patterns and local specificities that could permit deeper research into global strategies for diversification and regeneration in coal-dependent communities by expanding their comparative frameworks to more regions and countries.

It would be further enhanced by the inclusion of primary data collection such as surveys and interviews of the residents, community leaders, and business owners in company towns that could add nuance, and enable more in-depth qualitative judgments about the ways that communities and their residents respond to change in the economy.

Ethnographic research can give more depth regarding social and cultural change in these towns, offering much-needed analysis and understanding of how communities adapt to economic transitions.

This look could be expanded to the policy implications and, in particular, a policy intervention that was enacted in support of economic transitions within such company towns; it would provide even more information about what contributes to successful economic development in such towns and perhaps economic resilience for these communities.

Another future direction could be a study that aims specifically at elaborating new economic models, which would be more sustainable and could probably lead to the diversification of an economy in company towns. Further, this can be expanded upon to make it a model that will potentially be able to support mono-industrial towns in general that need to adapt to similar challenges felt by coal company towns.

For example, research into the role that technological advances are playing in transitioning an economy from a coal-based into a green energy one, and equally how the demand for energy and employment can be ascertained from green energy.

One aspect of research could be into environmental recovery that involves coal mining. For instance, the research into environmental and economic issues of the restoration of such areas to new uses, including eco-tourism.

Future research, with greater funding for the future, could explore the reimagining of coalfield narratives and the continuing significance of heritage tourism to residents, local governments, and coal heritage conservancies. Finally, a study would be justified to ascertain the effectiveness or

otherwise of educational programs for workforce development in the interests of ecology-driven industries to prepare residents against economic shock and changing economic realities.

8 Conclusions

This thesis examines the history of the coal company towns in Kentucky by actively looking into the conditions and nature of these communities as they rose and fell with the various changes in the coal industry. The analysis spans from the goals, and abstract notions benchmarking against the specific characteristics of these towns with company towns worldwide. The research adds a comprehensive list of coal company towns in Kentucky, which serves as key points of reference for inquiry and evaluation. This provides a comprehensive exploration and fitting expression of the various economic, social, and historic forces that have molded life and development in such towns. In this research, we conduct a comprehensive study of forty-nine coal company towns across fourteen counties in Kentucky, guided by four key objectives:

First was to define what is meant by the terminology coal company towns and we defined it, both from an economic structure point of view and from a social point of view. In that way, we provided the basis for further analysis in consistency with how these towns are characterized and discussed throughout this study.

The second goal was a global comparison of coal company towns. We compared economic dependency with infrastructures emanating from one company while highlighting several differences in governance, social conditions, and historical trajectories. In sum, we could put the Kentucky towns in a larger global setting underlining both general and specific features.

A third was a census of coal company towns found within Kentucky, which accounted for forty-nine in total. Reported were operational years, population changes, and the status of each town. The census provides an important prescriptive history of how these towns grew or died off due to industry trends.

To analyze the main demographic and infrastructural changes in the temporal development of coal company towns. The rise, peak, and decline of the towns concerning the developments and shifts in the coal industry were tracked. This brought to light the wider ranging economic and social effects on the towns, showing how their fates were inextricably linked with coal production, mechanization, and energy transitions.

These objectives, when put together, would provide insight into a wider perspective of Kentucky's coal company towns and show historic significance of such towns, the forces shaping their development, and their decline.

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