

## **V. ANALYSIS AND INTERPRETATIONS**

The analysis and interpretations of the Colorado Coalfield War Archaeological Project incorporate historic, informant, and archaeological information. Here, the project weaves all sources of information together to make draw interpretations and comparisons of life and change in the Ludlow striker's colony and the Berwind coal company camp. We examine both spatial organization and community as well as diet and consumption practices to make these interpretations. Spatial organization and community incorporates the data and issues related to: shelter (construction and amenities), ethnicity and religious segregation, health and sanitation, defense, and order and organization. Diet and consumption examine variations in possessions and food related items following the functional categories outlined by the project between pre and post strike Berwind and Berwind and Ludlow at the super-household level. In addition to these, this research examines faunal remains at Ludlow and a single household's possessions at Ludlow as preserved in Feature 73, the cellar from which we uncovered a single household's possessions. The research design discussed earlier guided this discussion. These interpretations incorporate the full range of data from the excavation, oral histories and historic research conducted in all years completed by the Colorado Coalfield War Archaeological Project.

### **A. Spatial Organization and Community**

In interpreting the use of space in the coal town of Berwind, it is important to note that the mine owners and the managers had the primary goal of resource accumulation, in this case coal. The spatial patterning of Berwind reflects a primarily industrial infrastructure with domestic space existing to supplement the needs of workers and their families. The project's study of Berwind centered on domestic space, such as housing, social clubs, and schools. We saw the importance of labor relations in the workplace, but we also saw domestic space as the arena for viewing the negotiation of labor relations and community more directly. In company towns, the influence of management did not end at the mine entrance; it entered daily life through company housing, company doctors, and company teachers. By looking at the spatial activities of the company and Berwind inhabitants, we were able to get a larger perspective of labor relations.

The Ludlow tent colony was a political symbol as well as a community. The UMWA's priority was to win the strike and recognition. The colony's space helped to accomplish this by establishing order and organization, which in turn promoted solidarity. It also created an image for the public that worked to ensure the public's support for the union's cause. By providing systems for sanitation, shelter, and organization in the tent colony, the UMWA worked to provide the necessities of daily life. Also through these practices, the union used the colony as a spatial statement that told the public, the Colorado National Guard, and the mine owners and managers of the ability of the strikers to develop their own community without the control of corporate powers. They showed that the different ethnic and immigrant populations were not limited and ignorant, but instead capable of maintaining their own structure. However, the violence of the strike and harassment and searches by the Colorado National Guard limited the union's optimistic ideology materialized throughout the colony. Such threats

required that the union and the strikers maintain a constant strategy of defense manifest through the material through the material features of the colony.

By looking at the categories of shelter, sanitation and health, ethnic and religious segregation, defense, order, and organization, we are able to define the use of space for both sites, and to make comparisons between the two. The uniqueness of both sites, the reasons for their settlement and community formation means they both have specific contexts, but they are not entirely separate. The Ludlow tent colony is a social and spatial reflection of Berwind in that it provided some of what the strikers demanded in space, but denied them by the owners. There are similarities or parallels in systems such as sanitation and shelter, and in ethnic and community relations. However, there are also differences resulting from the switch from mundane life in the camps to the life during a strike.

### *1. Shelter*

In our analysis of shelter in the coal camps and at Ludlow, this section considers the construction and architecture of the houses and tents, as well as structure “amenities” such as plumbing, and lighting. We looked at the size of the structure; i.e., the amount of floor space as reflected in the size of the tent platform or the foundation. Through the analysis of architectural features such as post and stake holes, nail alignments, and the materials used in constructing foundations and cellars we will be able to ascertain construction differences between different areas of the towns, the degree of standardization in construction, and whether facilities improved after the strike. Areas B and K at Berwind will be the main areas of focus.

Artifacts such as nails, grommets, and window glass also provide relevant clues in this regard. For example, nail pennyweight is an indicator of, minimally, the intended function of the nail (Sutton and Arkush 1996:164; Fontana and Greenleaf 1962). Artifacts like stove and lamp parts, wash-tubs, plumbing and gas hardware, and electrical artifacts can provide information about how the structure was heated or lit, how cooking was done, and how water was obtained for domestic labor. They can inform us about the differences in living conditions between different areas of the community.

#### *a) Berwind*

The development of the Berwind camp architecturally needs to be seen in a historic perspective. Changes in management policy in regards to the use of space dictated the use and manufacture of architectural space within the camp. In this section, we recognize three major periods of construction within Berwind. The first is the early or settlement period. This section dates from the initial settlement of the camp in 1891 until the strike of 1903-1904. The second period, the Sociology Period, is primarily distinguished from the settlement period by the 1903-1904 strike, but is better defined by Colorado Fuel and Iron’s establishment of a sociology department that regulated and standardized the development of housing and domestic structures within the coal camps. This Sociological Period lasted until the 1913-1914 strike and the Colorado Coalfield War. This strike and the national scrutiny that followed caused a reinterpretation of policy within the company, which was followed by the implementation of the Rockefeller Plan. This plan, practiced from 1915 until its deeming unlawful by the National Industrial Recovery Act in 1933 and the Wagner Act of 1935, directed the construction of domestic

space, its use, and style. Each of these periods had their own specific use of space and with that their own type of architectural style and layout for the camp, for which we will now discuss specifically using both historical accounts and architectural analysis of the foundations still present in Berwind.

### Settlement Period 1890 - 1903

This early period although not primarily in our research area, does help to provide a basis for the initial space in the company towns. The establishment of Berwind followed a pattern similar to most company towns. Company goals were centered on the mining of coal and the establishment of industrial space to achieve this goal. Investment in domestic space was minimal to none and miners and their families were on their own for the construction of housing and town services such as meeting halls. The result of this was an unplanned and unorganized community that relied on the expedient construction of miners housing.

The establishment of domestic space was an enduring effort of miners and their families to define household space in an industrial environment. Miners' housing lacked any standardized construction as it was all self-constructed and designed. Such housing was usually made with materials that were readily available and of low cost, such as timber, logs, adobe, and mud. The transient nature of mining labor led to a need of short-term housing. A miner and his family only needed a house as long they occupied it, and a new miner would build new housing or add on to previous housing when moving into the camps. The result was an ephemeral nature to housing.

Area K of Berwind represents this early period of settlement in the camp (*Figure 45*). According to the company publication the *Industrial Bulletin*, most of this area was demolished and replaced by a middle school and later on a high school beginning in 1916. Berwind Maps from 1911 and 1912 both identify approximately nine houses for this area. Photographs from CF&I's early company publication *Camp and Plant* center their photographs on this area of the town, as the center for domestic and industrial activity.



**Figure 45:** Early Settlement in Berwind. Camp and Plant V. 1 #5 January 11, 1902: 58

Excavations of features in this area also suggest an early occupation for this region of the town. Feature 1, a midden, had a short period of cultural deposition ranging from 1890 until 1910. This date range was based on wire nails found in the bottom stratum (FIII) giving a TPQ date of ca. 1880. The ratios of wire to cut nails change from the 1890s into the early 1900s with an equal ratio from 1890-1895, a ratio of wire to cut nails of 3:1 for 1895 to 1900, and the amount of wire nails increasing after 1900 (Sutton and Arkush 1996: 163). With a ratio of wire to cut nails of 15:1 for the entire feature, it appears to have been deposited from the late 1890s into the early 1900s. Bottle glass evidence suggests a depositional date for the feature as ending shortly after 1904. Of the identifiable bottle glass (n=90), 87 were mold-blown (pre ca. 1920). Three were machine made with a date after 1904. Three bottles were definitely deposited after 1904, but the context of these bottles is questionable due to their association with a looter's disturbance. Dating for this feature does suggest a date tied more to the early period of Berwind (1890-1904).

A privy excavation in area K, Feature 2, also suggests an early date for this section of Berwind. Wire nails found at the base of the feature give a TPQ date of ca. 1880. While coins found in the central strata of the feature (PI- 1900 "Indian Head" penny; HI- 1899 liberty head nickel, and 1901 "Barber" head dime) give a date range of between 1899 and 1901. The ending date for the feature is defined by the lack of machine made glass (ca. 1904). The bottle glass from this feature is all mold blown glass, except four machine bottle glass bottles found in the upper most strata (AI and AIII). There is thus a date range for the feature of 1880, but more likely 1890 with the settlement of Berwind, until ca. 1904. The date range does fall into the settlement period for the town of Berwind and does offer an area of interest in answering questions of space for this early period.



The lack of standing architecture and foundations for this area coincides with both the demolition of the area in later periods as well as housing styles for this early period. The lack of any long term mark on the landscape through foundations, standing structures, or changes in the topography suggest any early settlement in this area was ephemeral in nature. Architectural items and their counts as shown in Table 5 represent those items more specific to timber construction, especially the large number of nails representing 59% of the architectural group for area K. Brick represents only .3% of the total number of the architectural group implying there was little use of brick or other masonry materials in the construction of early miners' housing. Cement and stone are totally absent in the areas of Locus K sampled. The plaster might represent methods of construction besides timbering. These plaster pieces are similar to daub or adobe type architecture. Adobe type architecture was present in mining camps during this early period and matches a pattern of vernacular housing built by the miners. Such housing shows little company investment in the domestic sphere of the community.

Function	Count
Bolt	8
Bracket	2
Brick	9
Clamp	1
Molding	3
Nail	1553
Nut	1
Pipe	6
Plaster	4
Roofing Tile	8
Screw	10
Spike	14
Stove	2
Tack	7
Unrecognized	143
Washer	2
Window Glass	861

**Table 5:** Count of architectural materials in Locus K, Berwind

Miners and their families defined domestic space on their own terms through the establishment of architecture, services, and amenities. Because of their limited resources and minimal control of space, the miners and their families were restricted in their amenities and services. There is little evidence of infrastructural investment in Locus K for utility services such as lighting, heating, and plumbing. Archaeologists did not find any artifacts related to plumbing. As privies were associated to this area, specifically Feature 2, as well as the river supplying water, there was little investment in indoor

plumbing or water pipelines for the community. Stove and kerosene lamp parts were the main aspects of lighting and heating for housing. There was one copper base to a light bulb excavated in Locus K, from the upper strata (A) and not located in a feature. Insulators found in Feature 2 were found in strata (L1) with a date range between 1901 and 1904, and along with insulators excavated in Feature 1 (strata A1) suggest a presence of electricity in the camp. The strata define a late addition of electrical parts to Locus K and with the larger portion of kerosene lamp parts, it is questionable that the electricity was for domestic use, and was more likely for industrial use. These trends in utilities fit expectations of a company policy not investing in domestic services. Services such as plumbing and electricity require infrastructural investment for pipelines and power lines. Miners and their families did not have the financial resources to undertake such projects and would have to rely on the company for such services. With the denial of such corporate investment, miners and their families were forced to rely on less than up to date facilities.

Material	Count
Insulator	5
Kerosene Lamp	279
Light Bulb	1

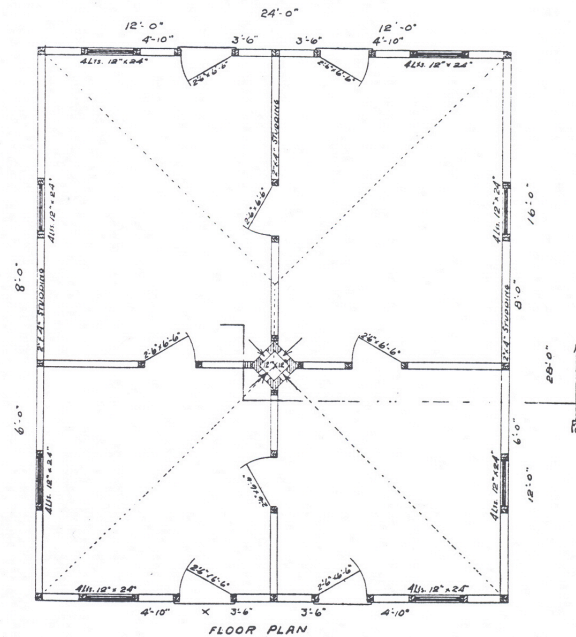
**Table 6: Lighting and Heating materials for Locus K, Berwind.**

#### *Sociological Period 1904-1914*

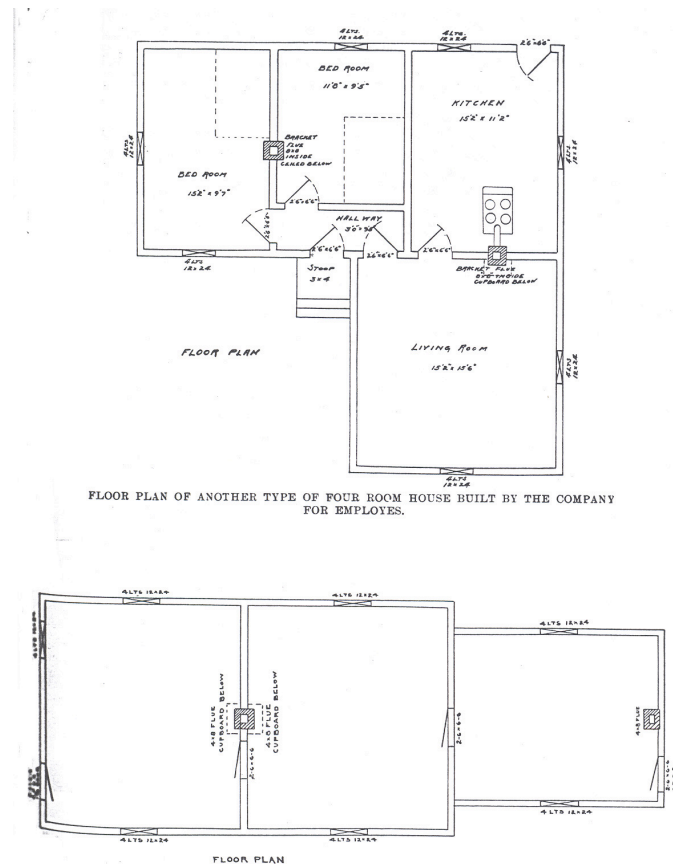
With CF&I's establishment of the Sociology Department, there was a drastic change in company policy towards domestic services and of material landscape. Dr. R.W. Corwin was appointed to head the new Sociology Department of CF&I in 1901. With this appointment, Dr. Corwin worked to instill corporate ideologies and policy into the material landscape through control of workers and their families' lives through space. The company took a paternalistic role in the design and role of domestic space such as housing, schools, hospitals, churches, and meeting halls. Workers no longer had the ability to construct their own housing or community space. The company drastically attacked and removed any architectural features that were associated with non-company controlled entities in the camps. This switch led to a standardization of design and use of space between the different camps.

In Berwind, CF&I replaced the vernacular and privately built miners' housing with that of standardized company houses. CF&I had three basic housing designs present during this period in Berwind, a 4-room cottage, L-shaped structures, and a 3-room plan (*Figure 46 and 47*). Measurements of the housing followed a standardized pattern. The 4-room cottage contained two small rooms (12 ft x 12 ft [3.6m x 3.6m]-12.96 m<sup>2</sup>), two large rooms (16 ft x 12 ft [4.9m x 3.6m]-17.64 m<sup>2</sup>), and a central chimney. The 3-room plan was arranged into a row of rooms, and two chimneys. Occasionally two were placed together to form a duplex design. The duplex was of symmetrical design with one front room (15 ft x 7.5 ft [4.5m x 2.2 m]- 9.9 m<sup>2</sup>), a second room (15 ft x 7.5 ft [4.5m x 2.2 m]- 9.9 m<sup>2</sup>), and a last room, usually used as a kitchen (15 ft x 12 ft [4.5m x 3.6 m]- 16.2 m<sup>2</sup>). A second floor of identical plan was also placed above the first floor (C&P V. 5, No. 13, April 9, 1904:314-315; Wood 2002: 161). The L-shape design offered more space than

the other designs with living room (15 ft 2 in. x 15 ft 6 in. [4.62m x 4.72m]- 21.84m<sup>2</sup>), a kitchen (15 ft 2 in. x 11 ft 2 in. [4.62m x 3.40m]- 15.73m<sup>2</sup>), A small bedroom (11 ft 8 in. x 9 ft 5 in. [3.56m x 2.87m]- 10.21m<sup>2</sup>), a larger bedroom (15 ft 2 in. x 9 ft 7 in. [4.62m x 2.92m]- 13.50m<sup>2</sup>), a hallway (3 ft x 9 ft 5 in. [.91m x 2.87m]- 2.62m<sup>2</sup>), a stoop, and two chimneys(C&P V. 5, No. 13, April 9, 1904:315).



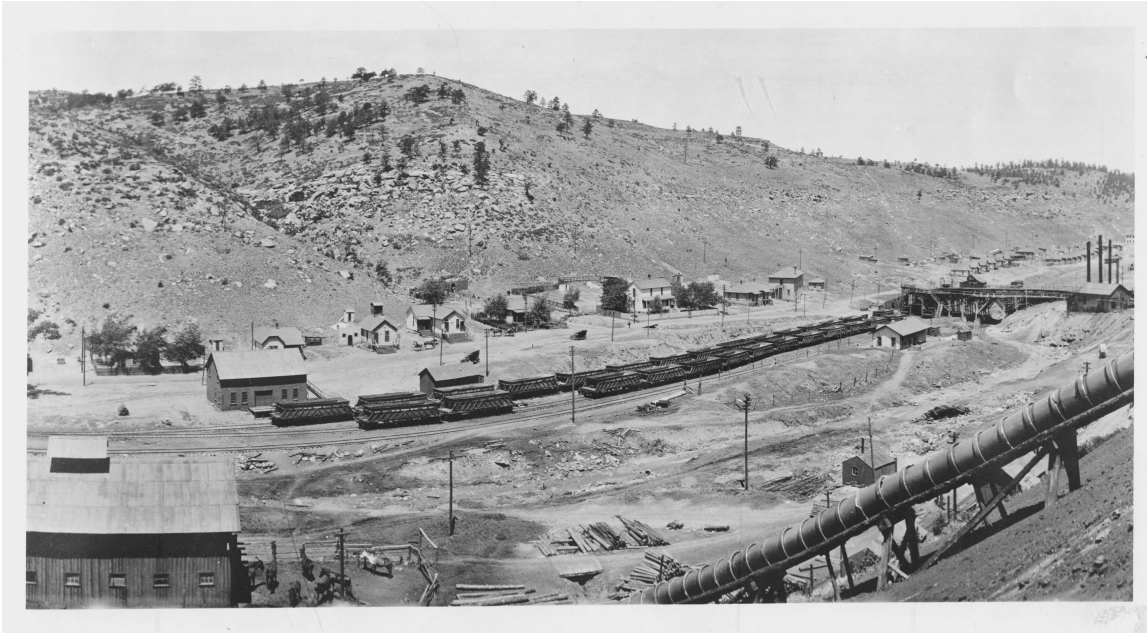
**Figure 46:** Plan for 4-room Cottage. C&P V. 5 No. 13, April 9, 1904: 314.



**Figure 47:** Plans for L-shaped and 3-room houses. C&P V. 5 No. 13, April 9, 1904: 315.

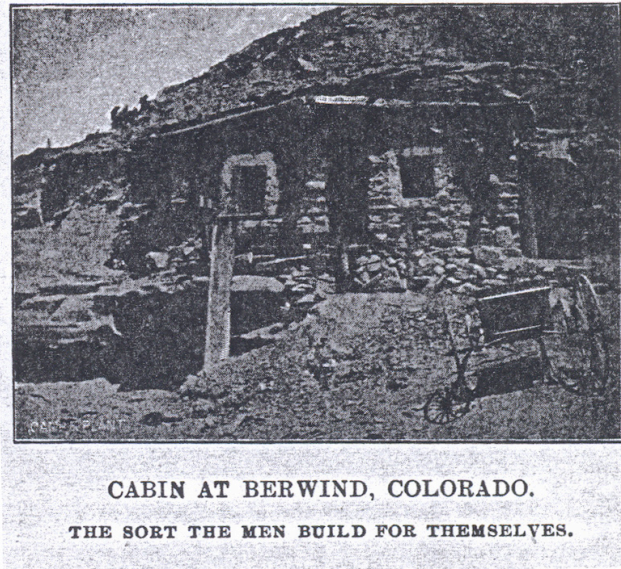
According to historic photographs and maps, the Berwind camp expanded to its main extents, moving north from Locus K (*Figure 48*). Most of the areas identified through the archaeological survey date between ca. 1900 and ca.1930. However, Area K and Area T have the closes dates to this period of 1900-1915 and define the material landscape of Berwind leading up to the 1913-1914 strike. Foundations for the period before the establishment of the Sociology Department are nonexistent due to the transient nature of miners' housing. However, with standard designs and materials dictated by the company pushed for a longer occupation of the camp, and therefore foundations become increasingly visible in the material record. These foundations as recorded in the archaeological survey for Area K, T, and other areas that overlap with this period (Areas A, C, F, and H) contain foundations constructed of a mixture of both stone and cement (*Figure 35*). The most common design throughout the camp was that of the 4-room cottage, with 3-room duplexes placed in Locus K. There also, based on retaining walls and the clustering of foundations, the establishments of neighborhoods organized off centralized streets. The community began to be centralized on company layouts of space. The build up of Area A, which oral history interviews labeled as the "show houses" exemplify this pattern the most. Although not completed in this period, maps do place an initial establishment of this area and of the ordered centralized layout that would define it as a showpiece for the later period. The elite housing area to the north of the canyon, near Tabasco also became better defined during this period. With it the housing of the

superintendent, the kindergarten teacher, and other company officials were centralized and their foundations made of stone and cement.

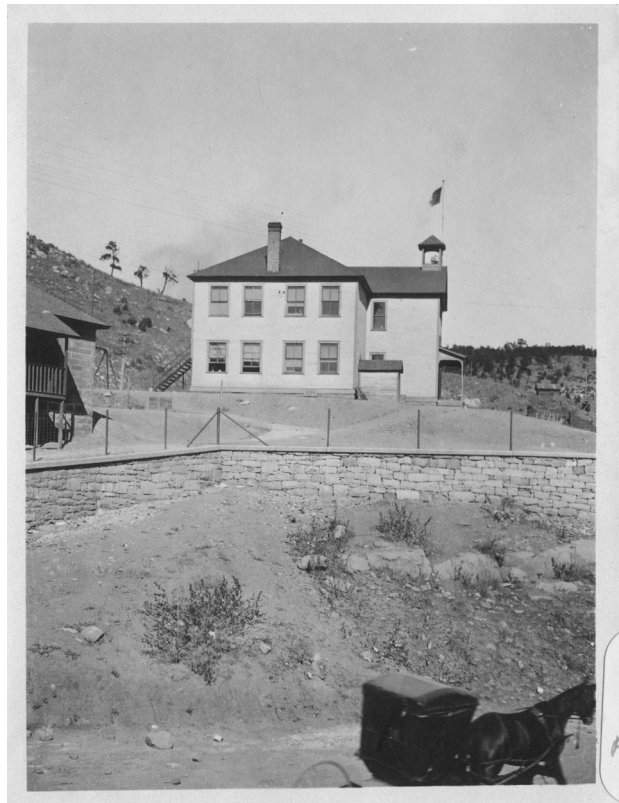


**Figure 48: Berwind North of Area K. Courtesy Bessemer Historical Society.**

New housing was more than a material change; it was an ideological one. An ethnic fight over culture and the establishment of a cultural authority became based in the material landscape, specifically that of housing. Miners housing and the ethnic neighborhoods combated company controls in the workplace. In order to gain more discipline in the workplace, CF&I used the Sociology Department to create a central corporate authority throughout the community. The Sociology Department's publication for CF&I employees, *Camp and Plant*, asserted a program repeatedly attacking the vernacular housing of miners as unsafe, unsanitary, and unkempt in comparison to the more modern and stylized company housing (C&P V. 1 #12 March 1, 1902: 178; C&P V.1 #15 March 22, 1902: 230; C&P V. 1 #17 April 5, 1902: 269) (*Figure 49*). The establishment of social services specifically that of the kindergarten also created a central place for social and community activities to take place under corporate authority. Schools worked initially to educate miners' children in the basic education of reading, writing, and arithmetic, but also worked to "Americanize" and industrialize children. CF&I officials saw immigrant labor as bringing their vicious habits with them, and that it was only through training children that these habits could be broken (Annual Report of the Sociology Department 1901-1902: 16). Americanization programs helped to phase out these habits, such as drunkenness. Through night schools, dances, lectures, and other social activities, the company changed the practices of adults. In Berwind, the Corwin School and the teacher's housing, along with the superintendent's house were emplaced at the north end of the camp, elevated on the hills over the miners and their families (*Figure 50*). The corporate controls became material symbols of proper cultural practices for the workers. These practices were materialized on the level of the worker through the row of show houses in Area A.



**Figure 49:** *Camp and Plant* photograph associated with showing bad conditions of miners' self-built housing.



**Figure 50:** Corwin School in Berwind. Courtesy of Bessemer Historical Society.

Services in this period remained in the area of social services and did not enter much into the development or improvement of infrastructure. The build up of retaining walls did work to limit erosion and to define the layout of the community better than the



earlier period. However, sanitation and water was still reliant on privies and the river. A major typhoid epidemic ravaged Tabasco in 1901. Company officials blamed the epidemic on the lack of good drinking water (C&P V1 #1 1901:5). However, there does not appear to have been any major improvement in water or plumbing for housing.

Lighting as well appears to remain similar to that of the earlier period. Area T's entire material related to lighting and heating was represented by kerosene lamp glass (n=7). Feature 2 of Area K, house location had an artifact analysis suggesting a deposition between 1901 and 1904 representing the early part of the Sociological period. The feature did have some evidence of electrical use in the camp from the presence of an insulator, but still kerosene lamp parts represented the larger amount of material for use in lighting. There is no documentary evidence for this period suggesting either that the company invested any resources for the development of electricity in the domestic portions of the camp, at least until the later part of the period shortly before the strike.

The Sociological Period was marked by CF&I's establishment of a paternalistic control of daily life, community, and space. Social services run through schools and the establishment of standardized architecture enforced this paternalistic ideology. The company took any control over space workers had in the construction of their own homes and their own social activities from them. These pressures and lack of control ultimately had an effect in leading to the miners to strike in 1913.

#### Rockefeller Plan 1915-1935

The Colorado Coalfield War and the Ludlow Massacre brought public attention to the material conditions of the coal camps and with it critiques. The United States Commission on Industrial Relations and its chair, Frank Walsh's critique of John D. Rockefeller's absence in the local implementation of corporate policy especially made people question how the company took care of its workforce. In answer to such critiques, Rockefeller with insight from former Canadian Labor Minister Mackenzie King developed the Rockefeller Plan. This Plan had as its base a system of committees that worked to answer workers' grievances and the social conditions in the camps. The implementations of this plan through two committees, first the Joint Committee on Sanitation, health, and housing, and second the Joint Committee on Recreation and Education had the largest affect on domestic space in the coal camps. Through such implementation of policy, a basic infrastructure of services and amusements was established that would ultimately lead to the miners asserting their own social practices under the company's guidance.

Based on dates of artifacts excavated through testing, and documentary information, Locus B is the main area for study for the post-strike period or the period marked by policy changes during the Rockefeller Plan. Area B held 10 domestic structures arranged in a crescent-like pattern in the northern area of the camp, close to the border with Tabasco. During the surface collection of the 1998 season, of two bottles were machine made (post ca. 1903) and were solarized purple giving a manufactured date before ca. 1915. Midden excavations in Area B suggest a post 1880 date through wire nails, and a definite TPQ date of 1882 from an embossed button from Stratum C of test unit block 3A. Bottles made with machine technology are more prevalent in Locus B than Locus K suggesting a later date for Locus B. There was only one machine bottle found in Area K, and archaeologists found it in a looter's pit suggesting disturbance, compared to

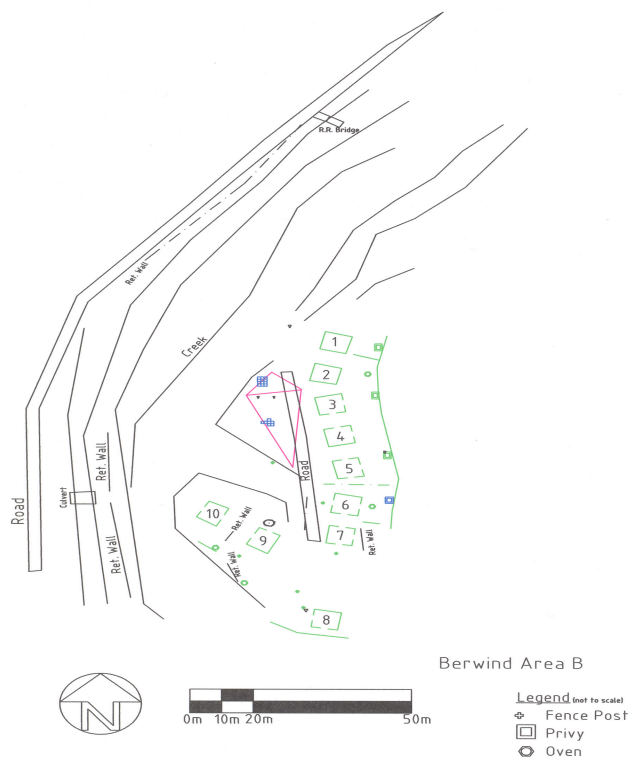
two machine bottles located in intact contexts of the Area B midden. The concrete foundations for housing and privies also suggest an association with the later period of the camp. Feature 4, a privy, provided limited information in that there were only two strata, with no apparent relation with occupation of the camp. Oral histories collected stated that the company routinely cleaned the cement-lined privies. This would limit any material associated with the occupation of Berwind during the period under discussion. Excavations in another midden in Area B, Feature 5, contain deposits of a probable date later than Feature 3, based on ratios between mold-blown and machine made bottles, 1:6, and 5.5:1 respectively. In addition, a canning jar lid liner embossed with "BOYD'S GENUINE PORCELAIN" and "PAT-11-22-10" gives the jar and that stratum of the feature a date after 1910. With this information, Locus B has the most association with changes occurring to Berwind shortly after the strike.

Housing for the most part had no overall change in structure. Company housing still marked the main source for housing, as the company worked to enforce control over space. In Berwind, the company worked to improve its image through an increase in the camp's size, increased construction, and cosmetic improvements to older structures. Foundations in areas built during this period, specifically Locus B, were primarily of cement. The stone foundations found during the Sociological period were still present, but new construction relied on cement alone. Remaining foundations and historic maps show that most of the houses in Area B were of the 4-room cottage design, one of the more popular designs in the camp. It also appears that many of the houses were walled with cement, whereas the show houses across the river in Area A were timber framed with cement foundations. Privies were also cement lined adding to sanitation in the camps. The Rockefeller Plan states that garbage removal, and probably privy cleaning, was free of charge for miners and their families (Rockefeller Plan 1916: 90). CF&I pushed for a cleaner more welcoming environment.

The company also pushed workers to establish their own beautification projects. Foremost of these was the garden projects of workers. The company built fencing free of charge between house lots to demarcate boundaries and to encourage workers to grow flower and vegetable gardens. The company rewarded workers through cash prizes given to winners of garden contests. *Figure 51* shows the winning house for 1924 in Berwind. This house was part of the show houses established in Area A initially under the Sociological Period, as supported by the background hills, and the timbered construction and stone/cement foundation. There were no remains for gardens in the archaeological record. Yet, Locus B does have the remains of the fence posts used for establishing the gardens (*Figure 52*). Through foundations and fencing improvements, CF&I established an infrastructure that encouraged workers to follow the sanitation standards for the camp and to improve upon them.



**Figure 51:** First Place Winner of Garden Contest, 1924, Berwind. Courtesy Bessemer Historical Society.



**Figure 52:** Map of Locus B Berwind

Other company provided services worked to modernize daily life and improve the standards in the camp. We excavated a pipe and associated pipe trench in Area A Unit 6. The pipe ran parallel to housing foundations in Locus A and it was probably used to transfer water into the camp. Maps suggest that construction of this waterline initiated shortly before the strike ca. 1910. However, it was only finished after the strike. The Rockefeller Plan did provide free drinking water to all those living in the camps (Rockefeller Plan 1916: 89). This was a marked improvement in sanitation over the collection of river water for daily needs. CF&I recognized the need for such improvements beginning in 1901 with a Typhoid epidemic in Tabasco that they associated with unclean drinking water (Camp and Plant V1 #1 1901: 5). In response, the company constructed a water pipeline along Tabasco Ave. in the Tabasco camp in 1902 (Camp and Plant V1 #8 1902: 125). The association of the waterline with Berwind's "show houses" does imply that the improvement was for display rather than actual general use across the camp. There remains little evidence of widespread use of waterlines in the camp through archaeology or documentation.

Although waterlines were continuations of those programs established under the Sociological Department, electricity fully entered the domestic sphere during the Rockefeller Plan. The Rockefeller Plan established a charge "of forty cents per light per month, with free lights on porches..." (Rockefeller Plan 1916: 89). As seen in Table 7 there is a presence of electrical parts, yet, there is still a larger number of kerosene lamp parts. The findings though most likely do not reflect the actual use of electricity. Testing in Area B centered on the middens and privies. Electrical work through construction and maintenance was most likely the responsibility of the company and not the tenant. Maintenance workers probably did not discard electrical parts into the same middens or trash deposits households were using. The durability of electrical parts over kerosene lamps meant more lamp glass would be broken and discarded than electrical materials. Reuse or reselling of electrical parts, such as wires, also explains their limited representation in the middens. The removal of electrical parts for resell most likely occurred with the dismantling of the structures in Berwind during the Depression. Even with limited material representation, it appears that CF&I was attempting to increase the development of electrical services in the miners' housing.

Material	Count
Light Bulb	1
Kerosene Lamp	64
Electrical Part	2

**Table 7: Lighting material for Locus B, Berwind**

As with the Sociological Period, the limitations of a closed and remote community as found in Berwind, called for company sponsored recreational activities and amusements. Clubhouses were the preeminent feature in the landscape for domestic recreation. The schoolhouse had been the arena for social gatherings during the Sociological Period, but the YMCA became the center for social activities following the 1913-1914 strike (*Figure 53*). The YMCA provided the company an outlet to control activities such as dances, lectures, night classes, and moving picture shows. Each of these

activities were based in the religious morality that Rockefeller wanted pushed through increased funding of Protestant churches in the coal camps, and religious services and teachings. The placement of the YMCA in Berwind near the elite area of the teachers' housing and the superintendents housing gave the clubhouse influence in the community and materially showed the company's authority in activities tied to the club (*Figure 54*).



**Figure 53:** YMCA Berwind. Courtesy Bessemer Historical Society.

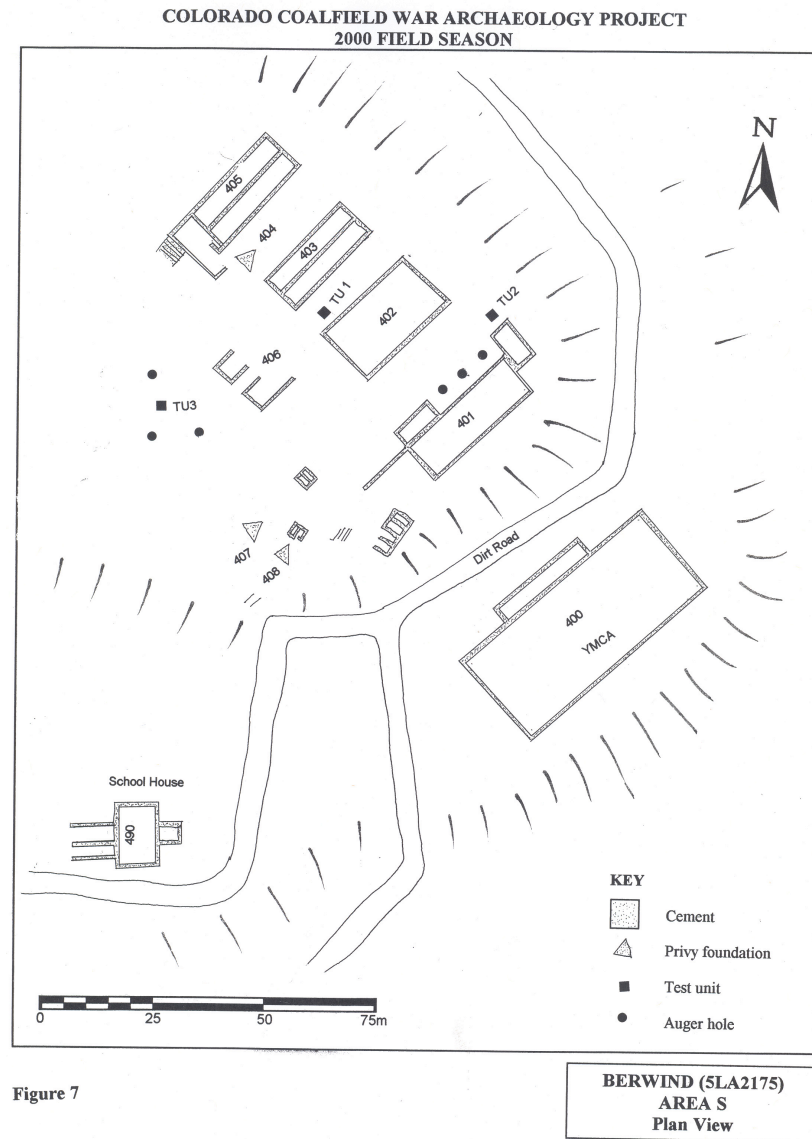


Figure 7

**Figure 54:** Elite Area of Berwind.

Furthering the push for religious morality in the community, Berwind had two established churches, one Catholic and one Protestant. Both buildings were located in the center of the camp and worked to mark the landscape culturally. The positioning of these churches near the mining administration buildings may have also promoted a material link between the company and religious authority. The most material aspect of corporate control during this later period was the positioning of the jail. Located in Area E, it is located directly west of entrance No.5 of the Mine. When exiting the mine it was the first structure seen by miners and most likely managers used it to enforce a statement of power in the landscape.

The architectural history of Berwind is a material reflection of CF&I's changes in managerial policy and ideology. During the settlement of the camp, the company took an interest in industrialized space over domestic space. This lack of interest forced miners



and their families to develop their own housing, neighborhoods, and community activities out of what social and natural resources they could attain. With the initiation of the Sociology Department in 1900, CF&I increased their interest in domestic space, especially miners' housing. The company created standardized housing designs replacing the vernacular housing of the earlier period. Also with the construction of schools, social halls, and community architecture, along with the introduction of social activities in these spaces, the company worked to establish a corporate community with a paternalistic structure. Such managerial authority in workers' daily lives added to the tension that led to the strike of 1913-1914. Following the strike, the company still had control over space, but was subject to increased critiques from the miners and the public. To answer these critiques, the company allowed more a voice for workers and attempted to increase services and at least present a material face to their changes in policy under the Rockefeller Plan.

#### b) Ludlow

Shelter in the Ludlow strikers' colony occurred at two levels, first the community as exemplified by the tent pad construction and its relation to those around it, and second the tent cellar. Their methods of construction differed, but both helped to shape daily life. In this section, the spatial layout for a tent platform will be analyzed. Also the methods of construction of a tent cellar will be discussed. Through such interpretations a basis of the material space of the Ludlow colony will be established.

#### Tent Pad Construction

Defining the spatial layout for a Ludlow tent colony tent platform entailed a broad area excavation. For this reason, we used Locus 1 as it was our best preserved and the only completely excavated tent platform. This in combination with the short duration of the occupation lends itself to study of the spatial distributions of the material recovered at the locus in order to identify

A: architectural features

B: use of space within the living area.

In this study we focus on the distributions of nails and window glass for architectural information and on the distributions of ceramics, bottle glass and bone for insight into the use of space.

We focus on *Tent 1* in the following discussion because it is the central tent, which was fully exposed. Both *Tent 2*, the tent to the southwest of Tent 1, and *Tent 3*, to the northeast, are also used for comparison.

#### Architectural Analysis

We recovered 400 complete nails from Locus 1. An important means of differentiating nail function is pennyweight, or the length of the nail (Otto 1984). While it may not be possible to arrive at the specific function the nail was used for (e.g., flooring as opposed to clapboarding or framing), in general certain lengths of nails were only good for certain tasks. For example a 1/2" nail would not have been used for heavy framing. Estimating the original function based on pennyweight may be even more difficult at Ludlow since we are not talking about standard architecture and there was

probably considerable adaptation of whatever resources were at hand. For example, it is more than likely that nails were used as hooks and hangers with in the tents.

Pennyweight	Length	Some Probable Functions	Count	Frequency
1/4	1/4"	Shoemaking, upholstery, small cabinetry	3	1%
1/2	1/2"	Shoemaking, upholstery, small cabinetry	29	6%
3/4	3/4"	Shoemaking, upholstery, small cabinetry	40	8%
2d	1"	Finish work, shingles, lathes, shop work	41	8%
3d	1 1/4"	Finish work, shingles, lathes, shop work	42	8%
4d	1 1/2"	Finish work, shingles, lathes, shop work	38	8%
5d	1 3/4"	Finish work, shingles, lathes, shop work	16	3%
6d	2"	Siding, shop work	19	4%
7d	2 1/4"	Siding, light framing, shop work	32	6%
8d	2 1/2"	Siding, light framing, shop work	89	18%
9d	2 3/4"	Siding, light framing	13	3%
10d	3"	Siding, framing	19	4%
16d	3 1/2"	Framing	7	1%
20d	4"	Framing	9	2%
30d	4 1/2"	Heavy framing	1	0%
40d	5"	Heavy framing	2	0%
			400	

**Table 8: Locus 1 nails by pennyweight**

The distribution of nails by pennyweight is presented in *Table 8*. This table presents the conventional nail size by pennyweight, the equivalent length in inches, and the some potential functions of that nail size, along with frequency and percentage.

Those nails under 2d may not be architectural, although some of them may have been used to attach the tent canvas to wooden framing. Most of these nails are probably from items such as shoes and small furnishings. Nails under 2d were 18% (n=72) of the complete nails. Nails from 2d to 5d (1" to 1 3/4") were generally not used for framing, but for lighter work such as shingling and framing. At Ludlow these nails may have been used for attaching the tent canvas and may also have come from furniture. 2d to 5d nails were 34% (n=137) of the complete nails. Nails ranging from 6d to 10d (2"-3") were siding and framing nails. We recovered 172 of these (43% of the assemblage). Nineteen (5%) nails were greater than 10d, ranging in size from 16d to 40d (3 1/2" to 5"). Nails of this size are generally used for framing, the joining of structural or load-bearing members. At Ludlow, the larger nails would have been used primarily for constructing the tent frames.

The small nails (<2d) were primarily recovered from outside the northwest corner of Tent 1 and within Tent 2. There were smaller concentrations along the south edge of Tent 1 (*Figure 55a*). The 2d-5d and 6d-10d nails were extensive across the entire excavation area (*Figures 55b* and *55c*). Both sizes were clustered between Tents 1 and 2 and in Tent 2. The main difference in the two distributions is that the smaller size nails appear to concentrate along the south and west edges of Tent 1, while the larger nails concentrate within the tent and may be associated with the arrangement of stake and post holes in the tent. This difference in concentration may different uses of the pennyweights, with the 2d-5d nails being used more for siding, attaching boards or canvas to a frame structure, and the 6d-10d nails being used more for the actual construction of the structure. Few nails larger than 10d were found (n=19). These were

mainly inside Tent 1 (*Figure 55d*), again probably reflecting the use of larger nails in the construction and joining of the tent frame. Otherwise we mainly found nails of this size outside Tent 1 to the north.

As we were dealing with such ephemeral structures we point-provenienced nails as much as possible during the excavation, a total of 117 nails. Of the point-provenienced nails 14 (12%) were less than 2d, 38 (33%) were 2d to 5d, 57 (49%) were 6d to 10d, and eight (7%) were greater than 10d. Although it is skewed somewhat towards the larger nails, this distribution parallels that of the nails as a whole. The spatial distribution of the point-provenienced nails, classed by pennyweight, is given in *Figure 55*. Our hope was that point-proveniencing nails would indicate floorboards as well as outlining the tent edges. Although as *Figure 55* shows, this approach did not yield anything so definitive, some information was recovered. We were able identify several definite alignments of nails running from southwest to northeast and two more general linear clusters running northwest to southeast. These arrangements do correspond to the orientation of the colony as revealed by the surface counts and by subsurface features. In addition to these alignments there are tight concentrations of 2d to 10d nails inside Tent 2 and associated with the acutely angled lines of stake holes southeast of Tent 2. While they generally conform to the orientation of the colony the distribution of the nails probably reflects the demolition of the tents, either during the massacre, or, if this tent dates to the post-massacre occupation, when the colony was abandoned.

The window glass or, more accurately, flat glass had a relatively tight and coherent distribution centered on the south corner of Tent 1, extending from the angled line of stake holes southeast of Tent 2 to the circle of stake holes in Tent 1 (*Figure 56a*). This glass may represent an improvised window in this area, although other possibilities should be borne in mind, such as picture frame panes, lantern glass, or some other use of panes of glass.

### *Domestic Space Analysis*

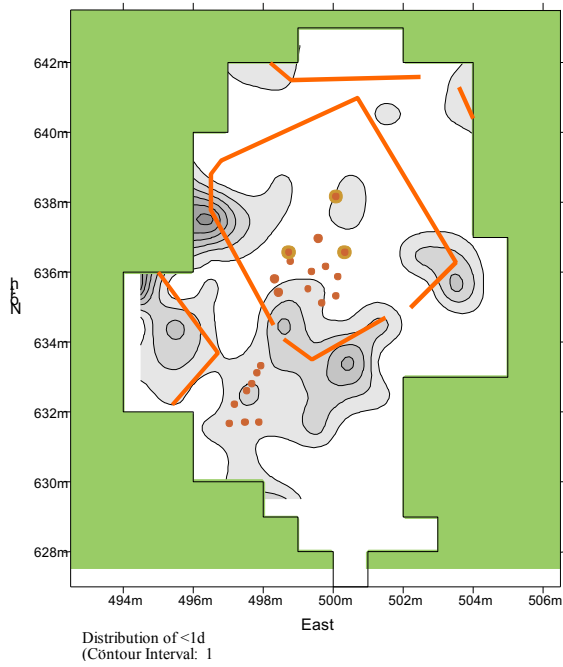
Bottle glass (*Figure 56b*) seems to be most strongly associated with Tent 1. There is a large concentration in the northwest quarter of the tent, with a smaller concentration just outside to the north. The dense concentration at the east corner of the tent is material that was recovered from sampling Feature 44, a shallow pit. Feature 44 probably acted as a trash receptacle during the tent's occupation. Ceramics, on the other hand, are found in both Tents 1 and 2 (*Figure 56c*). Ceramics were lightly scattered across the entire excavation, but there were four areas of dense concentration. There were two clusters in Tent 1, in the south and west quarters, and a dense concentration centered on the east corner of Tent 2 that extended west across the tent. In addition, there was a lighter cluster south of Tent 1.

When we consider the distributions of coarse earthenware, stoneware and white refined earthenware, the overall ceramic distribution was nearly indistinguishable from that of the white refined earthenware (*Figure 56d*). Which, as white refined earthenwares were 71% of the assemblage, is to be expected. Stoneware and coarse earthenware were mainly found in the vicinity of Tent 2 (*Figures 56e and 56f*), although there was a small cluster of coarse earthenware sherds around the stake holes inside Tent 1. Coarse earthenwares and stonewares tend to be associated with food storage and preparation. Stonewares were also used as jugs and bottles for whiskey and carbonated beverages,

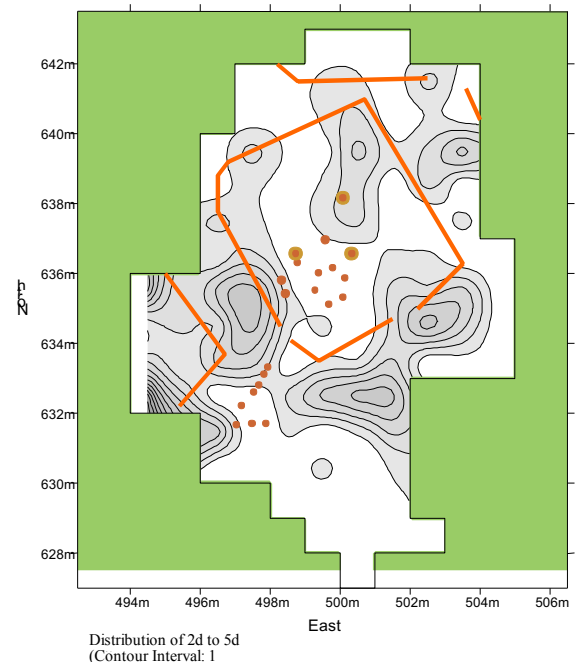
particularly ginger beer. While white refined earthenwares were used for food consumption and serving in the later 18<sup>th</sup> and 19<sup>th</sup> centuries, by the early 20<sup>th</sup> century they were used in most if not all areas of food preparation and consumption.

Bone (*Figure 56g*) was distributed in clusters outside the tents. The densest concentration of bone was around the angled line of stake holes southeast of Tent 2, suggesting that this feature may have been related in some way to food preparation or cooking. Small food items may have just been dropped around the tent structure either in the ditches or on the street. The interior of Tent 1 was very clear of such debris.

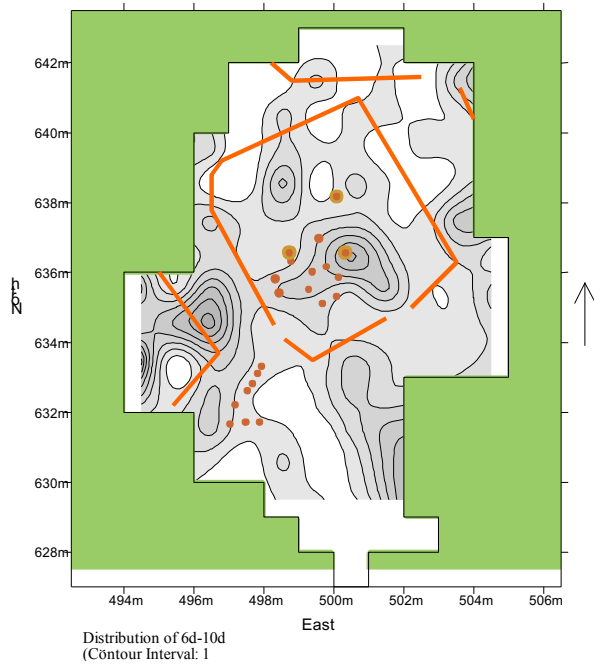
**The Ludlow Massacre Site**  
Locus 1



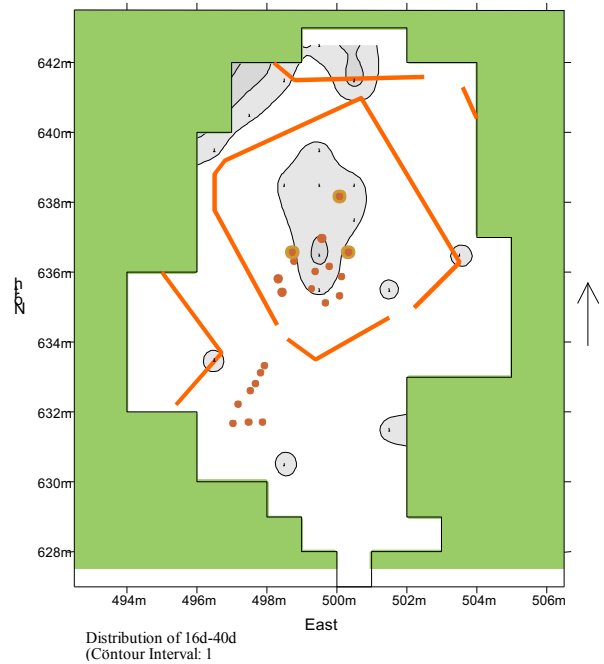
**The Ludlow Massacre Site**  
Locus 1



**The Ludlow Massacre Site**  
Locus 1



**The Ludlow Massacre Site**  
Locus 1



## The Ludlow Massacre Site

Locus 1

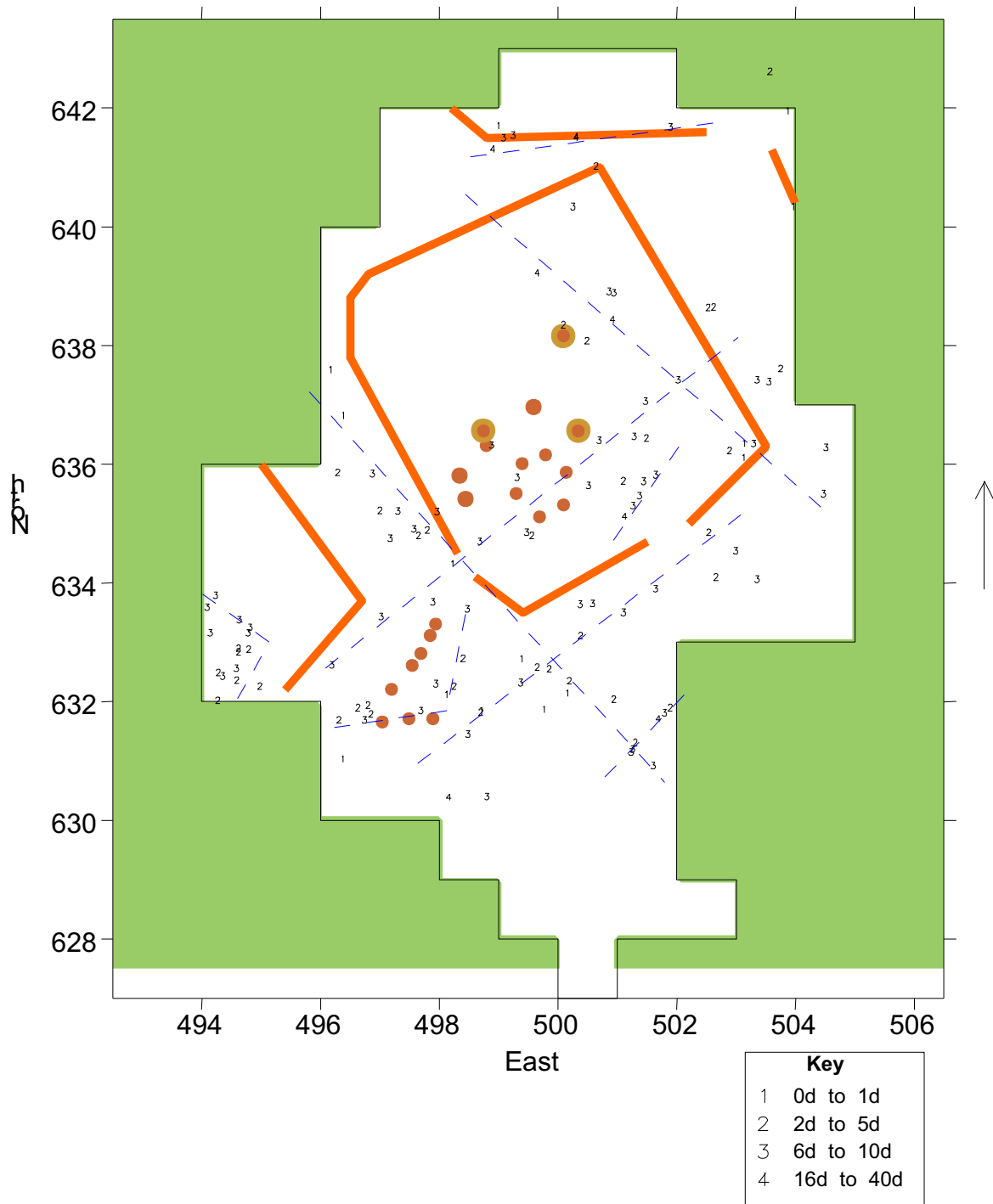
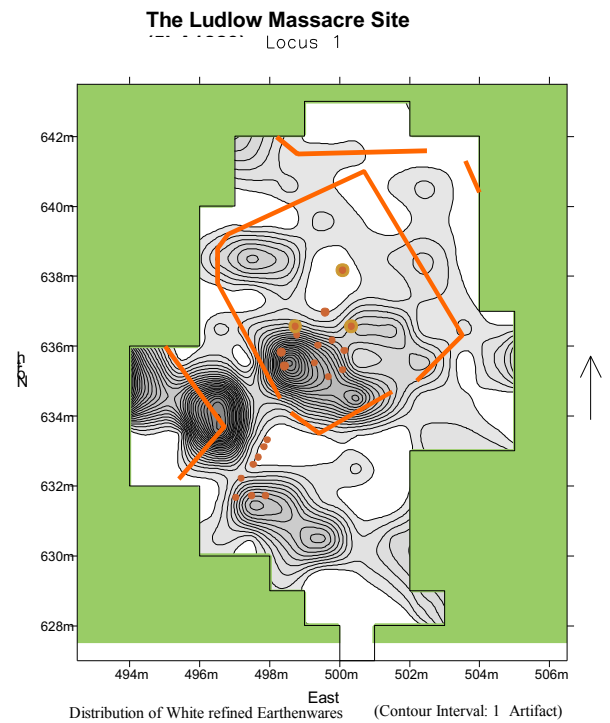
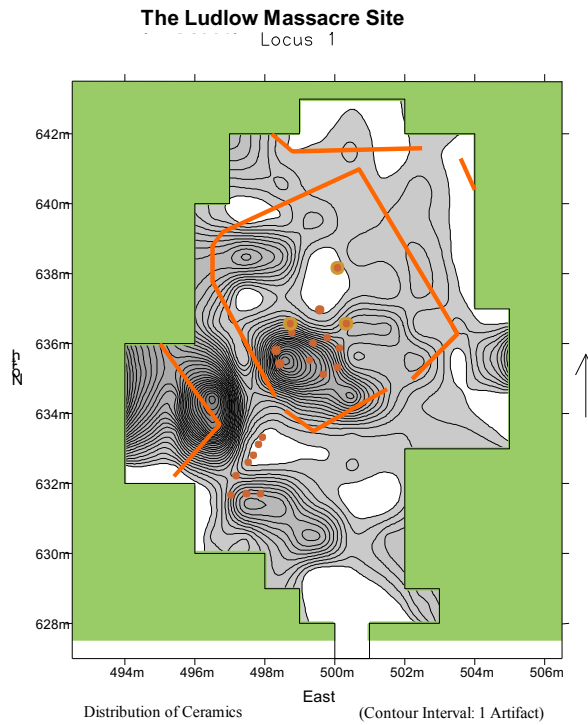
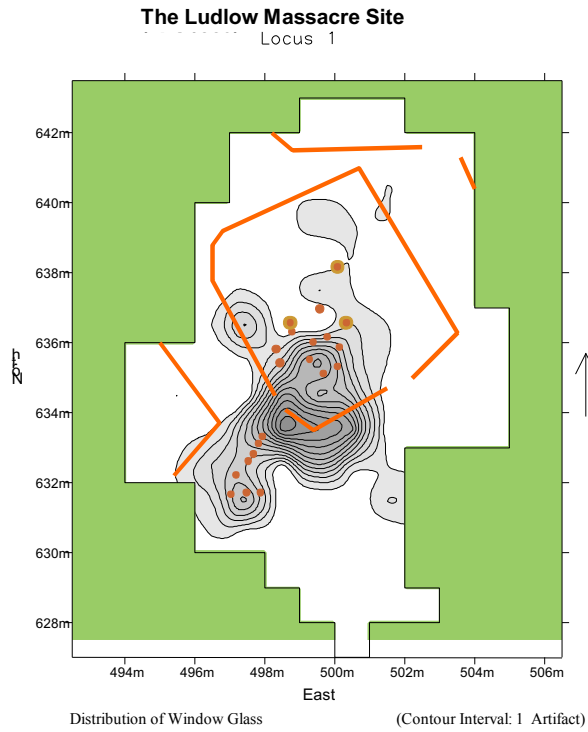


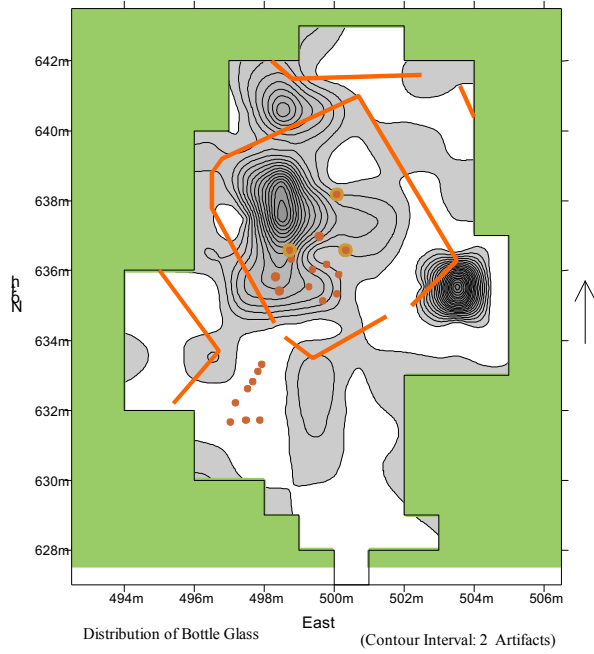
Figure 55: Distribution of point-provenienced nails



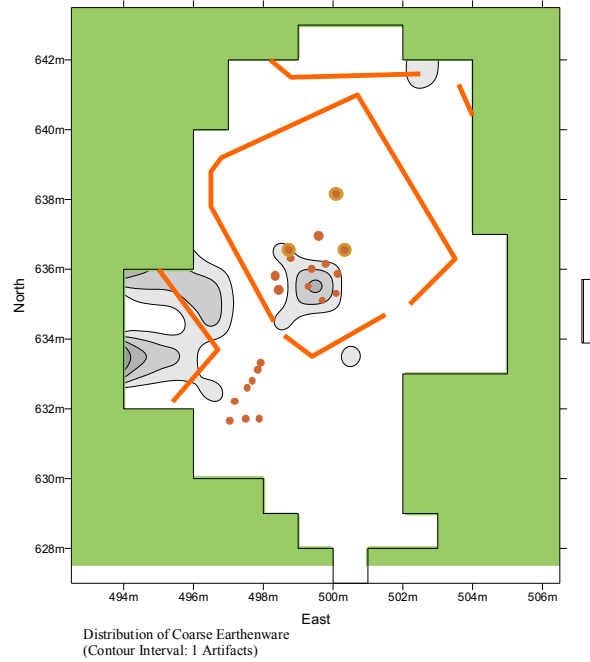


**Figure 56:** *Other artifact distributions*

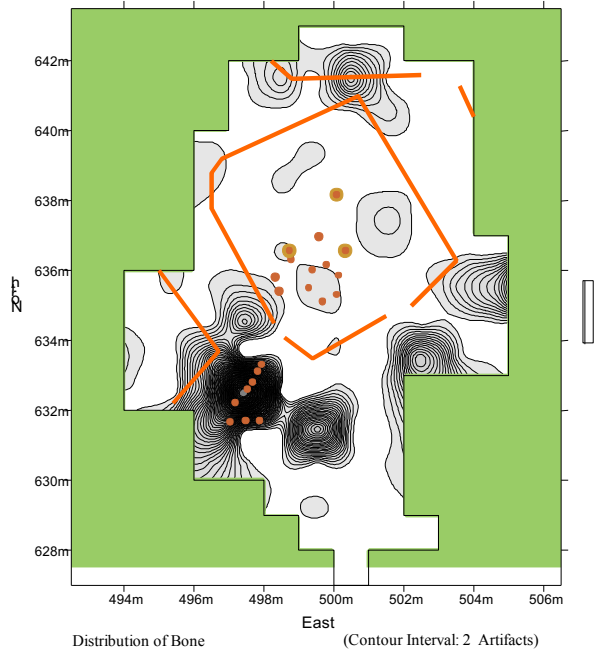
**The Ludlow Massacre Site**  
Locus 1



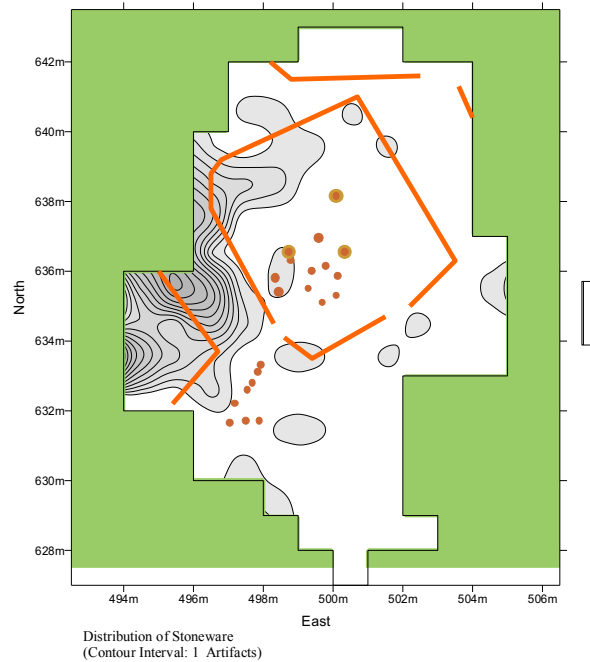
**The Ludlow Massacre Site (5LA1829)**  
Locus 1



**The Ludlow Massacre Site**  
Locus 1



**The Ludlow Massacre Site (5LA1829)**  
Locus 1



### Tent Cellar Construction

Using analysis of strata in both Feature 73 and 74 as well as historical evidence and photographic evidence, we will interpret the construction processes used in the excavation of a tent cellar. Beyond this analysis of construction methods, there will be a discussion on the use of tent cellars and their material amenities.

The “Death Pit” as an important feature in the post massacre landscape of the Ludlow strikers’ colony was subject to many photographs. These photographs along with statements from individuals such as Mary Petrucci provide the details of tent cellar construction previous to depositional processes. Historic and documentary evidence provide limit discussion of the methods of construction for tent cellars. Historic photographs suggest that non-uniformity was present in cellar construction. Large piles of earth can be seen in overall views of the colony showing which tents had cellars. These piles of earth tend to be on the western side of the tents and may have provided wind breaks during the winter. The colonists created platforms for the tent that also covered the cellar. Platforms created an initial locality for the tent, defining its space and making an initial sanitary location. Timbering on the ground and drip lines surrounding the tent platform added to the sanitation and establishment of household space. Inside the cellar, the timbered floor Mary Petrucci testified to (USCIR 1916: 8193) can be seen in *Figure 57*. Cellar depth can be estimated with the guardsman standing in the cellar. Such an estimate supports Mary Petrucci’s estimate of a depth of 6 feet. The photographs further confirm Mary Petrucci’s description of timber roof construction for the cellar. The photograph also shows that there was a partial earthen covering to the timbered roof. Earthen covering would have provided increased protection from bullets and searches as well as increased stability for the cellar roof’s construction.



**Figure 57:** Death Pit. Courtesy of The Denver Public Library.

**Figure 58:** Cross Section/Profile of Feature 73.

**Figure 59:** Cross Section/Profile Feature 74

Depositional processes and the excavated tent cellars (Feature 73 and 74) provide further evidence for cellar construction. The cultural deposition at Ludlow started with the set up of the tents, and excavation of the tent cellars. The drip lines that surrounded the tent platforms caught the coal and clinker deposited by daily activity along with the natural Aeolian deposits of the site. The dramatic events of the Ludlow Massacre through the burning of tents and the belongings of the Ludlow colonists created the initial massive deposition for the cellars. The heavy oxidation on the walls of Feature 73 shows the intensity of the fire that destroyed the colony. The fire also destroyed the timbering of the tents floor probably leading to the collapse of surface material into the cellar. Excavators found a bed frame in the center of the feature, most likely falling into the cellar directly from the floor above. We found surface artifacts, such as clocks, glass, cooking vessels and other artifacts related to daily life in secondary deposition, apparently from collapse of the surface tent into the cellar. The early and fast collapse in the cellar protected the walls from weather and slumping effects. Feature 73 (*Figure 58*) was a shallow feature as compared to Feature 74, with 92 cm and about 2m deep, respectively. The deposition of these artifacts along with the shape and size of the cellar suggest that the cellar was used for storage.

The massacre's fire could be seen as providing a Pompeii like preservation. However, instead the site became disturbed through post-occupation practices as exemplified through the depositional history of Feature 74 (*Figure 59*). With a depth of about 2m, it had a different depositional history than the shallower Feature 73. Feature 74's increased depth made it more vulnerable to post-occupational disturbances. Immediate was the recolonization of the Ludlow strikers' colony. Strikers and their families moved the surface remains of the original colony into the previous tent cellars. The result was a collection of material remains from multiple households in one tent cellar, and disrupting any original context of the initial inhabitants of Feature 74's associated tent. The walls and floor of the feature do exemplify probable design and construction of the feature, as well as suggest uses of the tent cellar. Excavators determined the extent of the feature through oxidation on the walls and floors whenever possible, but also through the identification of a lack of depositional fill in the feature and a sterile matrix marking the boundaries. No masonry or outside construction materials could be identified in the construction of the feature, and it appears that the cellar was formed solely through its excavation in the land. The overall shape of the feature was keyhole shape, with a set of cut steps into the ground to the east side of the feature. These cuts were placed in a systemic pattern, suggesting inhabitants may have used them as steps, a method described by Mary Petrucci as present in the "Death Pit." Oxidation on the lower portion of the floor and the cuts from 20-50 cm from the base of the feature, imply that this was the original shape of the feature at the time of the massacre. The floor of the feature had no discernable covering over the dirt floor. No timbers, stone or other material was present for use as a floor covering. An oil-drenched cloth almost covered the entire floor of the feature. However, its position on the floor does not definitively suggest whether it was used as a floor covering or as a covering for the ceiling of the cellar to keep dust down. There were very little artifacts associated with the feature floor suggesting little to no primary context for remains in the cellar.

The walls of the feature, vary in there structure and imply uses for daily life within the cellar. Archaeologists identified walls, similarly to the floors, through a lack of artifacts and cultural inclusions marking sterile soils. For the most part, the walls except for cuts steps in the east section of the cellar were vertically straight to the floor. Wood Timbers found along both North and South walls oriented vertically along the walls suggest a system of support for the cellar roof. In the Northwest section of the feature from the floor to about **75** cm above the floor, was a cut into the wall of about 25 cm, suggesting a storage niche. The context for most of the artifacts in the niche did not seem to be primary based on their inconsistent positions. This niche was probably filled with materials during the colonists' deposition of surface remains into the feature following the massacre. Before the massacre, such a niche would have been useful for storage, especially if the deep cellar had been used for a living space, as historic accounts describe the use for some cellars. It also could have added an additional area not seen by outsiders, allowing for the protection, and hiding of prohibited items.

The fill immediately above the floor in stratum E2 was a transitional layer identified as cellar roof fall and/or tent floor collapse. Burned and charred timbers and wooden boards were aligned in a collapsed pattern with boards for the most part mixed together and overlapping. Gaps between boards were filled with the sterile fill that matched the natural surface layers (10YR 3/2 Very dark grayish brown silt clay loam). There were signs of oxidation through colorization of the soil in the soil matrix between the boards as well. The erratic arrangement of boards and timbering do not imply primary deposition and support more of an interpretation of collapse.

Although not in primary context, the historical accounts of tent cellar roof construction, by those such as Mary Petrucci, and the evidence from the historical photographs, coincide with the mixed nature of the deposits in stratum E2. The photographs and the historical descriptions suggest a timbered floor in the tents used for covering tent cellars. The photographs specifically show dirt fill used to help support portions of the timbered floor. This fill would have come from the excavation of the cellar and any other earthwork construction and would be from the same matrix as the natural deposits on the site. With the fire, the floor associated with Feature 74 burned and collapsed, most likely bringing with it some of the fill supporting the floor into the bottom off the cellar. The parallel of the cellar roof/tent floor construction between Feature 74 and the descriptions of the "Death Pit" suggest there may have been some standardization of construction for tent cellars of the colony. Yet, this standardization may have come from the general situation of construction in the colony. The strikers were miners with knowledge in specific mining and tunnel excavation methods, and most likely worked with limits on resources for the construction of the cellars. There was a design and order in the construction of the cellars that implied planning.

### Amenities

The transient nature of the strikers' colony limited the infrastructural development in the colony and the amenities used. According to union leaders in the colony, it was set up to allow for the best access to resources such as water and coal (House 1914: 214). Strikers needed to bring resources into the colony. There were no pipelines or established sanitation services besides trash pits, middens, and centralized privies. Table 9 shows the types of lighting and implements used at the Ludlow site and the colonists' limited use of



electrical equipment. Table 10 shows a comparison to each locus. For the most part, areas of trash deposition such as Locus 6 (trash pit) and Locus 7 (midden) show higher amounts of kerosene lamp then the domestic features. The fragile nature of lamp glass would lead to repeated breakage of lamps and their deposition in refuse piles leading to a higher amount than in the tent features, where mostly intact pieces would be kept. Locus 11, with feature 73, a shallow tent cellar with little disturbance shows the most amount of stove parts. The lack of disturbance and the durable nature of the stoves mean a higher expectation of stove parts in domestic features such as those found in Feature 73. Locus 11 does have the only suggestion of electrical service in the colony. There are suggestions in the documentary record of electrical use, such as a phone in Pearl Jolly's tent (USCIR 1916: 6348). However, the identification of electrical and light bulb parts hint at only a presence, and the fact that these materials are restricted to Locus 11 imply a very limited presence. In expecting a short strike, did not invest in any long term established services outside of a basic tent shelters and stoves for heating.

Function	Count	Percentage
Kerosene Lamp	87	96
Electrical	1	1
Light bulb	3	3

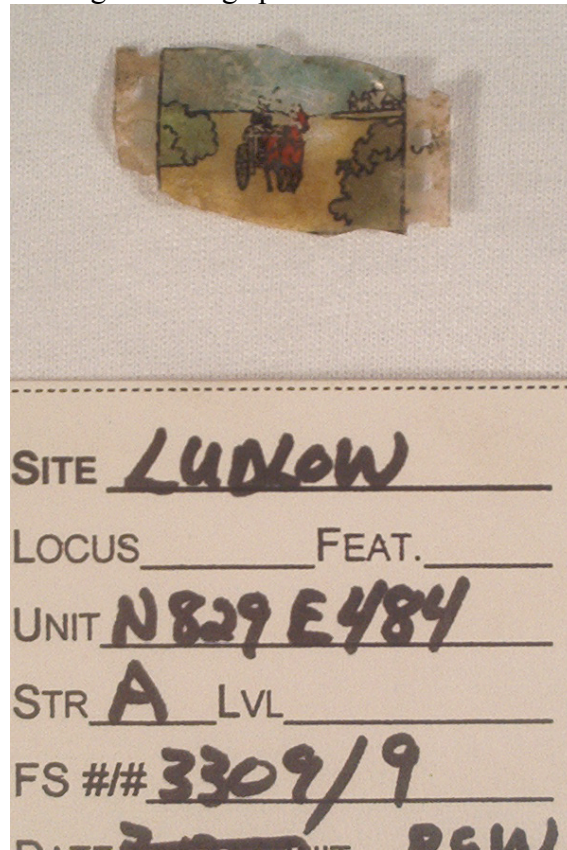
**Table 9: Lighting related materials for Locus 11 Feature 73, Ludlow**

Locus	Function	Count
1	Kerosene Lamp	2
6	Kerosene Lamp	51
6	Stove	3
7	Kerosene Lamp	19
7	Stove	8
9	Kerosene Lamp	3
9	Stove	0
11	Kerosene Lamp	8
11	Stove	38
11	Electrical	1
11	Light bulb	3
12	Kerosene Lamp	4
12	Stove	2

**Table 10: Lighting and heating related materials in buried features at Ludlow**

The union did have amusements in attempts to increase solidarity. The big central tent housed colony dinners, dances, and was meant to act as a church and school although never used as such (House 1914: 219). A celluloid frame (*Figure 60*) found in the midden provides evidence for the use of moving picture shows as a method of entertainment in the colony. Other evidence of recreation such as baseball, gymnastics (*Figure 61*), and music appears to be set up on the part of the colonists. The location of gym sets on Front St. would help the public image of the strikers as expressing a friendly healthy community. The establishment of a formalized baseball field to the south the colony, including stands, also shows the union's promotion of solidarity through shared practices.

The construction and layout of the Ludlow striker's colony occurred at two levels, first the layout of tents enforced by the union for the purpose of defense and observation of the surrounding areas and the second the level of the tent in which strikers, and their families established household space in the tent and occasionally the cellar. The tent provided basic shelter through covering and a stove. No amenities such as water or electrical services were widespread in the colony. Both strikers and union representatives arranged for what amenities or amusements there were in the colony. Amusements and activities existed for the main purpose of establishing solidarity. Outside of the striker community, strikers and their families could escape in their cellars. Such cellars had some level of standardization in their construction, but overall had individual traits such as size, shape, and inclusions such as niches to fulfill the needs of those inhabiting the tent and cellar, such as storage or living space.



**Figure 60:** Celluloid Frame from Ludlow.



**Figure 61:** Men doing gymnastics at Ludlow Tent Colony.

## *2. Ethnic and Religious Segregation*

Ethnicity has a complex definition and as with all aspects of identity is subject to both individual and group practices. We define ethnicity as an aspect of identity, in which people create affiliations based on common cultural and religious practices, nationalities, and language. Ethnicity works to mark people based on their cultural practices, which works to accept or exclude people. The identification of one's self can have drastic consequences and the results vary along with the situation. Therefore, identity, even ethnicity can vary within a specific group or individual depending on events. For example, for Italian- Americans, the self-identification of Italian ethnicity can be helpful when dealing with Italian communities, but can be detrimental when dealing with Americanization programs of corporations, such as Colorado Fuel and Iron (CF&I). This section of spatial analysis, does not primarily concern itself with the day-to-day changes in self-identity, but rather works to interpret how CF&I used space to deal with ethnic issues, and how ethnic groups used such space to establish their own ethnic identity and community.

### *a) Berwind*

The ethnic landscape in Berwind was subject to both national and local trends regarding immigration and labor and community relations. Changes in the workplace led to the increased hiring of unskilled immigrant labor. CF&I followed such industrial and managerial trends to limit costs and increase efficiency. Federal laws, especially those passed following WWI, led to limits in immigration on a national level felt in both the

mines and community of Berwind. Overall, there was a diverse ethnic landscape reflecting the national trends of the time.

The varied nationalities in CF&I's camps (up to 24 different nationalities were represented in Berwind according to the 1910 US Census) suggest that issues of ethnic relations and community practice were important ones for not only labor relations, but in the daily community interactions. However, there are limited historical documents directly stating the actions CF&I took to deal with any issues of ethnicity. Labor groups, specifically the UMWA, suggest that CF&I deliberately integrated work crews and domestic areas within the camps in order to limit the effectiveness of union organization. CF&I managers denied such actions, and suggested they had little influence in the ethnic composition of mining crews. US Census records do not completely clarify the issue. They do list ethnic identification through birthplace of individual, and birthplace parents. However, for the 1900, 1910, and 1920 census, there are no addresses or house locations recorded, only the order in which the census recorder counted the house. With an assumption of a somewhat ordered count moving in one direction up or down Berwind canyon, there can be an interpretation of ethnic composition in areas of the camp. Margaret Wood (2002) used such a process to identify the development and existence of ethnic neighborhoods. Oral histories help to define areas associated with ethnic groups. Historic photographs help to refine an image of the changing ethnic landscape of Berwind. Material culture does offer some suggestion of difference, but is limited in its definition of ethnic areas. For this interpretation, we divide Berwind's ethnic history into three sections, similar to those made in the section on shelter. First, 1890-1900 representing CF&I's limited interest in domestic space and therefore of the ethnic landscape. Second, 1900-1913, the period representing CF&I's increased interest in ethnic spatial divisions under the Sociological Department and the period leading to the Colorado Coalfield War. Third, the post strike period under the Rockefeller Plan is discussed in relation to how miners used what control over space to define themselves ethnically and spatially.

### 1890-1900

Ethnic settlement in the early days of the coal camps was a mixture of American and European groups that worked to segregate themselves into ethnically uniform neighborhoods. The company's disregard of domestic space provided the workers with the ability to establish their own neighborhoods. Ultimately, challenges in labor relations, such as the 1903-1904 strike, forced CF&I to consider the effects of the domestic space on labor relations. Such interest in domestic space led to the dissolution of ethnic neighborhoods.

The 1900, United States census records showed that Berwind already had an ethnically diverse population. Fifty-six percent (n=285) of Berwind inhabitants originally came from Europe, while forty-four percent (n=228) were born in the United States (Wood 2002: 105). The Europeans, except for the Italians, came from Northern European countries (Table 11). The large number of Italians remained constant throughout the habitation of Berwind. This was due largely because of John Aiello, an Italian himself, who acted as a shop owner, landlord, and immigration agent (Wood 2002: 107-108). Although varied in nationality, there was an ethnic core centered in Northern European

culture, except for the Italians. Such commonalities most likely would have helped in the miners' establishment of community and domestic space.

<b>National Origins of Berwind Inhabitants in 1900</b>		
<b>Nation of Origin</b>	<b>Number</b>	<b>Percentage</b>
United States	228	45
Italy	203	40
Austria	34	7
England	15	3
Scotland	13	3
Wales	5	1
Sweden	4	1
Germany	3	1
Ireland	2	0
France	2	0
Unknown	2	0

**Table 11: National origins of Berwind inhabitants in 1900.**

By relating the ethnicity of the household to those recorded in the houses nearby, an interpretation of ethnic neighborhoods can be made. Based on this analysis, Margaret Wood found that fifty percent of households had a shared ethnic affiliation with two of their neighbors, thirty three percent had only one neighbor with the same ethnicity, and twelve percent had no ethnic affiliation with their neighbors (Wood 2002: 111). Although not definitive or specific in actual location of ethnic neighborhoods, it does suggest the probability of ethnically uniform neighborhoods.

During the settlement period of the CF&I camps, including Berwind, the company gave little attention to the establishment of domestic space. Corporate concerns centered on the establishment of industrial areas and the mining of coal. Managers left workers and their families to develop their own domestic space and housing. The result was that most domestic architecture was self designed and built by miners and their families with vernacular designs. Ethnic distinction in housing was not discernable as material and resource demands dictated design more than cultural standards. Hispanic architecture through adobe and vigas, can be seen in some historic photographs (*Figure 62*), and would be more apparent given the community support in the region. Historic photographs also suggest the existence of ethnic barrios or neighborhoods. The photographer AR Mitchell, a local of Trinidad used his photographs to push his own anti-immigrant motives and his opposition to the industrialization of the region due to the mines (Margolis 1988: 39). He centered his images on the squalor of immigrant households and as a result provided a picture of ethnic neighborhoods.



**Figure 62:** Miners Housing in Starkville. Courtesy of The Denver Public Library.

Beginning in 1900 the relations between the company and the workers in the domestic community changed dramatically. CF&I established a sociology department in order to create social services and increase control in the domestic sphere through the construction of schools, clubhouses, and miners' housing. Through the Sociology Department, the industrial labor practices of scientific management found in the workplace entered the home. The answer to such changes was the blatant act of resistance made through the 1903-1904 strike. During this strike, ethnic groups specifically Northern Europeans and Italians banded together and used ethnic alliances to organize under the United Mine Workers of America to act against the company collectively. In response, the company used new policies materialized in domestic space to dissolve ethnic affiliations.

### 1900-1913

On a national scale, beginning in the late 1800s, technological improvements allowed for a deskilling of labor. This loss of skilled craft labor when matched with the adoption of new managerial management policies in the early 1900s led to the increased hiring of unskilled immigrant labor on both a national and local scale. The strike of 1903-1904 also worked to enforce corporate control over the working community through the expulsion of American and Northern European (British) strikers from the strike field. Immigrants from Southern and Eastern Europe replaced them. CF&I took more of an active role in housing and domestic architecture. Such a move created a corporate community with the management and owners taking a paternalistic role over their workers. The company constructed standardized housing for families and bachelor miners. In this redevelopment of space, the company integrated the community and disbanded the ethnic neighborhoods. It was the company now that determined the nature of community practice. As miners and their families moved into company housing, the

company destroyed the vernacular housing of the settlement period of the camp. The result of this change in policy was that by the time of the 1913-1914 strike, ethnic neighborhoods had been abandoned for the most part.

The ethnic composition of Berwind reflected the continued increase in immigrant labor found on the national scale and throughout the CF&I camps. There are similarities in Berwind's composition between 1900 and 1910 (*Tables 11 and 12*), according to the US census. Native-born inhabitants remained the majority (37%- N=299) with Italians following as the second largest ethnic group (33%- N=265). John Aiello was still a strong presence in Berwind and continued to act as an agent bringing in immigrant labor (Wood 2002: 107-108). Berwind was an Italian community, a fact recognized by CF&I managers (cite). Yet, there was a drastic change in the ethnic makeup of Berwind from the Northern European core to one representing nationalities from Southern and Eastern Europe.

The strong support for labor organization shown during the 1903-1904 strike by native-born, Italian, and Northern European groups led the company to look for other ethnic groups to limit the success of further organization. Immigrants from Greece, Poland, Slovenia, Serbia, Russia, and other Eastern and Southern European countries as well as Japan moved to Berwind (Table 12). The low labor costs of these workers and the mixture of differing ethnic groups worked to limit the success of union organization in the camp.

National Origin 1910	Number	Percentage
United States	299	37
Italy	265	33
Croatia	29	4
England	24	3
Poland	23	3
Greece	23	3
Slovenia	22	3
Japan	15	2
Serbia	12	2
Russian	12	2
Montenegro	10	1
Scotland	10	1
Albania	8	1
Hungary (Magayar)	8	1
Lithuania	7	1
Bohemia	6	1
Austria	6	1
Moravia	4	1
Ireland	4	1
Canada	3	0
Mexico	3	0
Wales	3	0
Germany	2	0
Norway	1	0
Sweden	1	0

**Table 12: National origin for inhabitants in Berwind 1910**

Beginning in 1901, CF&I established the Sociology Department that ultimately led to a paternalistic structure in the workplace and the home. Space became the materialization of the programs associated with the department, as space was seen by Dr. Corwin, the head of the Sociology Department, and others as the stage to promote company values and directives. The Sociology Department dictated the practices and designs for domestic space in CF&I's camps. The goal for many of the Sociology Department's programs was to Americanize workers under the ideas held by CF&I as central to being a good American worker. Such tenants included temperance, a strong work ethic, no labor organization, and loyalty to the corporate community. The Sociology Department used social programs and space to limit outside influences and diminish the old world traditions of immigrants.

Changes in housing were the initial step in limiting the influence of ethnic identity. The company took a new interest in workers' housing it did not have in the 1890s. Company designed and constructed housing replaced self-constructed and private homes of workers. The company used its publication *Camp and Plant* to promote the image of company housing as clean and modern and a much-improved replacement over what they claimed to be dilapidated private miners housing. In replacing the private homes, the company also disbanded the ethnic neighborhoods dictating where workers and their families lived. Using Margaret Wood's (2002) analysis of ethnic neighborhoods discussed in the previous section, there does appear to be a decline in the existence of ethnic neighborhoods. By 1910, while 41% shared an ethnic affiliation with one neighbor or were located near someone of similar ethnicity, only 15% of the population shared an ethnic affiliation with both of their neighbors, while 41% of people had no shared ethnicity with any of their neighbors (Wood 2002: 111). With the majority of people not sharing customs, traditions, or a language with their neighbors, the expression of ethnic identity on a daily basis was deterred. This lack of shared identity with neighbors or ability to communicate on cultural or a thorough level of conversation led to limited organization, a situation that favored company control of domestic space.

Materially there is little to differentiate ethnic groups in Berwind for this period. Company housing was standardized in layout and appearance. Owners probably took personal belongings away with them when they moved out of the camp. Testing in midden deposits does not clearly establish ethnic markers through material culture. Alcohol consumption is a possible ethnic marker through the differences in consumption. As the company disapproved of alcohol, it did allow it at some level, and as an act of resistance, workers could have used alcohol for identity outside of company control, and expressed their identity through the type of beverage consumed. However, based on bottle types comparing whiskey, beer, and wine, there does not appear to be any spatial difference in alcohol consumption. Testing shows a propensity of beer consumption in the camp, but not in any specific area. Middens, as neighborhood dumping grounds should allow comparisons between loci to identify differences in neighborhood alcohol use. However, consumption habits appear mixed, as the census data suggests.



This paternalistic control of domestic space and community relations, helped to lead to the strike of 1913-1914. Workers and their families' inability to find any power in social or community relations looked to outside groups, in the case of the strike the UMWA. With each ethnic group denied the same ability for expression or identity, they organized together in an attempt to gain control over community practice.

#### Post-Strike 1915-1930

Following the strike, CF&I replaced the Sociology Department with the Rockefeller plan, a system of committees composed of workers' representatives under a company union. This company union attempted to create an ideological change from the paternalism of the previous period to an industrial democracy where workers had a say in labor and community relations. As a part of this policy shift, Americanization projects continued and grew in success. National immigration laws had the most dramatic affect on ethnic composition. The limited number of new immigrants along with the Americanization projects helped to limit the ethnic associations of individuals. The result was that many of the decedents of immigrants began to see themselves as primarily American and saw their European ancestry as secondary. While on a household level, ethnic identity may have proved acceptable, on the community level, workers and their families integrated with other ethnic groups in parties, dances, and dinners. The self-identification of workers beyond ethnicity may have helped in cross ethnic relations. It also aided in the self-identification of Euro-Americans as primarily Anglo-Americans. What ethnic separation existed under the Rockefeller Plan was primarily racial.

The Federal Government drastically changed immigration trends following WWI through the passage of laws that curtailed the level of immigration into the United States. According to census records on Berwind, this national change in immigration affected local trends in the coal camps. In comparing 1910 to 1920, the population of native-born Americans grew from 37 % (N= 299) to 66% (N=422), European born inhabitants dropped from 60% (N=480) to 30% (N=197), and Mexican nationals grew from .004% (N=3) to 4% (N=28). Many of those native-born individuals have surnames of Hispanic or Italian heritage. Those with Italian ethnicity appear to be descendents of earlier Italian immigrants remaining in the community, while Hispanic surnames from Southwestern states, such as Arizona, New Mexico, Colorado, Utah, Texas, and California suggest the company's need for replacement of immigrant labor. Sarah Deutsch (1987) states that the seasonal employment of coal mining melded with the seasonal labor schedules of the primarily agricultural Hispanic populations of the area. Hispanic farmers based their economy on agriculture during the slow summer months in the mines and moved into the mines during the winter months. Yet, production rates recorded by the Colorado Mine Inspector suggest a full year production in the Berwind mines. The establishment of households in Berwind as suggested by census records and oral histories suggest a switch by Hispanic miners from a primarily agricultural lifestyle to that of industrial labor.

Ethnic spacing in Berwind reflected the changes in the miners' perception of having more freedom in development of community. According to Margaret Wood (2002: 114), there was a slight rebound in the establishment of ethnic neighborhoods as suggested in the 1920 census records. In comparing 1910 to 1920, there was an increase from 15% to 20% of people sharing an ethnic identity with both of their neighbors, there was also an increase from 41% to 45% of Berwind inhabitants sharing an ethnic identity

with one ancestor, and a decrease from 41% to 35% of people not having any common ethnic heritage with any neighbor. With a transition from paternalism to a company union, there was an increase in workers' ability to express themselves in community negotiations. Workers and their families apparently used the increase in negotiating ability to increase ethnic associations in space and to segregate themselves at some level from others. It is this segregation and the further use of Americanization programs on the part of the company that defined the ethnic landscape in the last years of Berwind.

Americanization programs by the 1920 census had been in effect for about 20 years. The immigrant children, the audience of these programs, saw themselves not as Italian, Polish, or Greek, but Italian-American, or American. Articles from CF&I's publication *The Industrial Bulletin* during WWI suggest the affects of Americanization programs were for the most part successful in making the workers self identify as Americans (IB V3 #4 July 31, 1918: 9; IB V4 #1 October 31, 1918: 1-2, 6). The history of union organization in the area also promoted class over ethnic identity, which also probably helped to create a decrease in ethnic differences. This decrease in separate ethnic self-identification explains the only slight rebound in ethnic neighborhoods, as people saw themselves as sharing in an overall community, not small separate ethnic ones. Generally, neighborhoods were based on networks of family and friends instead of ethnicity.

Oral histories do suggest that what cultural separation there was in the community was based on racial segregation. One informer stated that many of the Italians lived near the Catholic Church (Informant A). The church located centrally in the camp in Locus H acted not only as a religious and cultural marker for the Catholic community. Radiating from this central location, kin groups and ethnic Italians established a centralized community within Berwind. The company could use this neighborhood, and its close proximity to the show houses to express not only the architectural designs but its Americanization programs in that although there was an ethnic basis to this neighborhood, there is nothing material to show that the area was expressively Italian. Photographs suggest more compliance with the company's Americanization programs and housing standards (*Figure 63*). These Photographs, specifically of the show houses that were associated with the mainly Italian areas during this period show tenants complying with the company's garden contests. Oral histories suggest there were two other areas made up of predominantly one ethnic group, Locus B established after the 1913-1914 was mostly Hispanic and identified as such through the neighborhood's label of "Frijole Hill," and Areas T and U up Stock Canyon as the location of mostly African-American miners and their families.



**Figure 63:** Garden in Show House area of Berwind. Locus A. Courtesy Bessemer Historical Society.

Berwind's African-American population was not very large in 1920 (N=9). Some did live in areas along with Hispanics and Anglo-Americans. However, according to oral histories (Informant A and B), the majority lived in Stock and School Canyons. Materially there is a larger portion of stone/cement foundations suggesting the company did not improve the area like others in the camp under the Rockefeller Plan. This placement on a side canyon did keep them outside of the main center of community activity. It is questionable whether the company placed African-American miners in this area, if other miners pushed African-American miners up into the side canyons, or if African-Americans that placed themselves away from the main center of activity.

"Frijole Hill" was not hidden in a sub-canyon, but open to the public and the rest of the Berwind community. It was directly across the stream from the show houses and the elite area at the north end of Berwind. Based on census records, most of those that shared ethnicity with their neighbors lived in this area, and that ethnicity was Hispanic or Mexican. Oral accounts support this separation of ethnicity. Materially, Area B appears similar to other areas of the camp. Foundations were standard 4-room cottages with fencing established around the yards. Company emplaced architecture did not establish much ability for ethnic expression. Artifacts as well reflect a commonality in consumption with other neighborhoods, as the company store still dictated most of the consumption habits of households. The placement of Hispanic people in this area seems to be more an act of exclusion from other areas, then setting themselves apart.

Depositional history on the site of Berwind limits the ability to find differences in ethnicity across space. This period 1915-1930 was the last large scale habitation of the

canyon related to the mine. CF&I cleaned privies and dismantled housing with the closing of the camp. Thus, household comparisons are limited for this period. Midden deposits should allow some comparison. However, the project did not find many personal items that could be used as ethnic markers. Consumption patterns appear to be standard across the camp. Such a situation is not surprising since the company store dictated the standard options for products. Workers were still limited in where they could purchase goods after the strike. Margaret Wood (2002) analysis of post strike households also shows the standardization of food production on the household level through canning. Such standardization limited ethnic expression and fit into those identities already lessening ethnic expression. The company store did not make large attempts to provide ethnic or imported goods. Alcohol consumption, although not useful in earlier periods, was absent in Locus B and other areas. Laws prohibiting liquor on both a national and state level curtailed the open consumption of alcohol.

Berwind's ethnic landscape varied according to controls on space and ideologies dictating ethnic identity. For the settlement period of the camp, 1890-1900, miners and their families had almost complete control over domestic space and the development of neighborhoods. They chose to align themselves with others of similar ethnicity. Such a setting allowed for increased community development and labor organization. However, from 1900-1915 the company increasingly took over domestic space and worked to limit ethnic expression through Americanization programs and integrated neighborhoods. However, after the 1913-1914 strike and the Rockefeller Plan's added freedoms for workers allowed a return to ethnic neighborhoods. However, the workers had limited control over space, and the success of Americanization programs made miners and their families see themselves as more American than European. Racial segregation that defined spatial divisions in the last period of Berwind as African-American and Hispanic miners and their families, although not completely excluded, were not included in the main areas of the camp.

#### b) Ludlow

The expression of ethnicity faced many of the same obstacles in the Ludlow strikers' colony as those found in Berwind. The multiple ethnic groups established in the camps were represented in the strikers' colonies. Strikers and their families asserted their own identities through their practices and social relations. However, the union's goal of winning the strike required a strong solidarity within the multiethnic population, resulting in a struggle between ethnic expression and union ideology. The union pushed for an integrated community through their methods of organizing the colony, but with a population divided by multiple ethnic identities and 24 different languages, space became an arena for performance of both ethnic and class identity. Through material culture, archaeologists can identify activity areas and the practices held within these areas.

The Ludlow strikers' colony was under constant redefinition even more so than the coal camp of Berwind. Strikers and their families had to negotiate on scales from the household and the community to develop community relations and individual identity. Central public places such as communal union tents allowed people to meet and negotiate community issues in public. Individual and family tents and tent cellars allowed people to practice their individual religious and cultural practices outside of the prying eyes of the striking community. The public sphere was not absent from ethnic expression. As a

part of identity, people publicly performed their ethnic identity through playing instruments such as harmonicas and mandolins, and games such as bocce ball (USCIR 1916: 8186) (*Figure 64*). In contradiction to CF&I, the union accepted and encouraged ethnic expression in a way to establish solidarity.



**Figure 64:** Strikers playing bocce ball. Courtesy Denver Public Library.

It is questionable what percentage of each nationality was present in the colony at any specific time. The population in the colony varied highly. Mary Petrucci and her family did not move into the colony until January after being forced to move from her home in Ramey (USCIR 1916: 8192). Living expenses not fully met by the union relief forced many strikers to move to other areas for periods in search of work, as with Mary Thomas's husband. In addition, many of the strikers had personal relationships and family in the area in which they could live with through the strike. This was probably the case for many of the Mexican miners. Sarah Deutsch (1987) states that CF&I especially had a difficult time moving Hispanic groups into the company towns because of their social networks outside of the camps. With the strike, many of the Hispanics probably relied on these social networks for support outside of the union. Due to this transient nature of the striking population and the union's push for solidarity, there was most likely no ability for ethnic groups to establish a strong and lasting cluster or neighborhood in the colony.

Union organization worked to limit any friction due to ethnic differences. The union initially handled the ethnic question by establishing an internal police service and group of committees representing each nationality. Louis Tikas represented the Greeks (USCIR 1916: 6364), Bernardo Verdi the Italians (USCIR 1916: 6808). Through such a system, the union structured the relations between ethnic groups with the union remaining the central authority. There does not appear in the documentary evidence any spatial division in the colony based on ethnicity or nationality. The only separation of a group was the establishment of an area specifically for bachelors. The Greeks were all bachelors (USCIR 1916: 6355) and therefore controlled the bachelor area. They also

according to accounts made by the National Guard and strikers controlled the Ludlow colony (USCIR 1916: 6364).

Strikers' perception of ethnicity and the established union space in the colony declare that there was a strong sense of solidarity within the colony and no ethnic differences. Mary Petrucci testified that her time in the colony was the happiest of her life. She also stated the population in the colony had good relations between each other and she did not mention any ethnic disharmony (USCIR 1916: 8192). Margaret Dominiske noted in her description of the colony that people performed their ethnic identity, especially through music and that such expression was welcomed and encouraged (USCIR 1916: 7379). Traditional ethnic holidays such as Greek Easter were open to all strikers and their family and participated in by most of the colony, implying that strikers used such practices to express ethnic identity in a way to encourage class solidarity. Mary Petrucci testified that the neighbors that took refuge in the death pit were Mrs. Costa, Mrs. Valdez, Mrs. Patragon, and herself (USCIR 1916: 8194). These women lived in the tents surrounding the death pit, and represent both Italian and Hispanic ethnicities, showing a somewhat mixed neighborhood.

Materially there is little to differentiate ethnicity across the Ludlow colony site. Personal items are the most definitive materials in identifying ethnic identity (Mrozowski 2000). Buttons, pins, medals, and artifacts of ethnic practices can be helpful in identifying ethnic differences across space. However, the trend of material items in the Ludlow strikers' colony is that of solidarity through material uniformity rather than ethnic expression through material practice. Clothing items, specifically buttons remain similar throughout the site. Materials such as Bakelite, shell, copper, porcelain, and iron represent the different types of buttons. None of these is necessarily ethnically different. Two iron buttons, one from Locus 1 and the other Locus 12, are embossed with an eagle and anchor on the front, but still have no specific ethnic affiliation. Locus 1 does come closest to ethnic differentiation. Medals, and medallions found in the tent platform of tent number 1 have Italian marks and religious motifs suggesting an Italian household. There is not enough information though to suggest that their neighbors were of Italian ethnicity. The photographic record of the colony also shows a standardization of dress in the community. There is no direct or obvious expression of ethnic identity in the photographs. Social pressures in the camps and in everyday life most likely forced any traditional dressing practices out of the population before the strike. Company stores also directed the consumption of clothes and textiles, which led to a uniformity of clothing styles. Medicine bottles can be associated with specific national origins. Bottles with this embossing are centered in the trash pit feature of Feature 70. If this feature represents the trash of a definite section of the colony, most likely the southern portion, it might suggest more Hispanics in this area of the site. A medicine bottle found on the floor of Feature 74 in primary context was embossed in Italian. An Italian household may be associated with this cellar, but again there is no information on the ethnic identities of the neighbors. Medicine bottle use does not definitively determine ethnic identity, consumption of such medicines were for their popularity and usefulness than ethnic identity.

The coal companies and the union saw ethnicity in a similar way. It was a threat to community cohesion. However, they had differing methods of lessening the separating effects ethnic expression can have on community relations. Whereas the companies attempted to hinder ethnic identities and practices through integrated communities and

company sponsored Americanization programs, the union used ethnically diverse colonies with shared and open ethnic practices that diluted ethnic identity while encouraging class solidarity.

### 3. *Health and Sanitation*

The overall health of the miners and their families speak not only to the hard working and living conditions they endured but also to the company investment in the availability of sanitary water supplies and waste disposal systems. Determining the overall health and sanitation of the miners and their families fits into the project's examination of the spatial organization of the community. One of the main goals of this project is to determine what effect, if any, the strike had on the material conditions of the miners. Did the material conditions improve after the strike, remain relatively the same, or degenerate? In addition, the project hopes to flesh out the true living conditions for miners and their families both in the company owned camps and in the tent colony. While health and sanitation issues were not directly related to the original list of demands for the strike, except for the ability to choose their own doctors, these issues directly speak to the overall conditions endured by the miners and their families. They also speak to conditions that may or may not have led the miners and their families to even consider siding with the UMWA and deciding whether or not to strike. At the company town of Berwind, variation in architectural features such as privies, drains, trashpits, middens, and streets can provide information on the investments made by mining companies in the coal camps over time and with the institution of the Rockefeller Plan. In order to address these issues, the project attempted to excavate areas such as privies and focus on material types that can address health and sanitation such as medicinal bottles.

Because not all areas were contemporaneous, we focused on two areas of the site that we can date their construction and occupation to before and after the strike. These are Areas K and B respectively. Oral histories collected by the project also indicate that Area T was, up School canyon, was where most of the African American miners and their families lived. We know from historical documents that this group was socially marginalized. Because we cannot isolate a specific time period, since the area was occupied throughout the life of the town of Berwind, we will compare this area to the overall site of Berwind to determine whether this socially marginalized ethnic group suffered from inferior sanitation facilities and limited access to health care.

Medicine bottles, while often found in small numbers, are extraordinarily useful when found in the archaeological record. The bottles themselves, unlike other bottles, generally denote their original contents through elaborate embossing. By looking at the illnesses that the population was treating through proprietary medicine, archaeologists can get an overall view of the health of the miners as well as the types of ailments for which the miners sought a cure. According to Eric Larsen (1994:70), "medicine's practice, therefore, reflects how people envision themselves within their social environment." Larsen and others (1992) also suggest that the presence of proprietary medicine is an indication of resistance to the late 19<sup>th</sup> century's professionalization of medicine. Kathleen Bond (1989) suggests that the presence of medicine bottles in workers' housing points to covert alcohol consumption, as most proprietary medicines have high alcohol or opiate contents. And Charles Orser (1991) has looked at the advertisement of proprietary medicines in relation to commoditization. Based on these

studies and others, it is evident that medicine bottles can inform upon larger issues than simply the overall health of the miners. In this project, we will look mainly at the health of the miners and their families and speculate on some of the other factors at work with regards to proprietary medicine consumption.

According to Fike (1987) drugs are often divided into two groups: proprietary or ethical. Ethical drugs are those restricted to sale by a doctor's prescription and proprietary drugs are generally, "protected by secrecy, copyright, or patent against free competition by name, product, composition, or manufacturing process" (Fike 1987:3). Fike (1987:3) also explains that "'patent medicine' has become the common, generic term applies erroneously to all remedial agents sold without prescription." This term is erroneous because medicinal products were seldom patented. Instead, ingenious drug manufacturers registered brand names, distinctive bottle shapes or designs as trademarks to safeguard against corporate theft. Trademarks were issues for twenty years, were renewable and were not subject to governmental scrutiny. Once registered, these brands became known as patent medicines.

Privies, like medicine bottles, offer a wealth of information in a small container. Privies at the town of Berwind can shed light on several questions that interest the Project. First, the construction of privies over time can inform us as to the investment of the company in sanitation issues within the camps at different times. Second, the fill of the privies speaks to several issues: the practice of cleaning (how often and how well), how and if the practice of cleaning changed over time, what was thrown into the privies, and what parasites are present in the privy soil.

The issues of construction and cleaning were generally governed by law by the time Berwind was constructed. However, the actual practice was rarely policed, especially in rural areas like Berwind Canyon. A change from wood to cement lined privies greatly improved the sanitation of privies. The cement lining of privies provided an impermeable barrier that prevented sewage to leak into nearby groundwater and drinking water.

Aside from construction, the actual fill of a privy, or lack thereof, also provides important information for archaeologists. The practice of cleaning was also governed by law by this time in most states and actually policed in most large cities. If the privies were not cleaned on a regular basis, they tended to be magnets for small trash items such as medicine and liquor bottles, buttons, children's toys, and the like. In these confined and generally protected pits, these items remain generally well preserved. In addition to artifacts, people deposit disease into privies. Parasites and other bacteria, excreted through feces, are preserved in the soils of privies over time. The Colorado Coalfield War Project, did not have the means to undertake the specialized analyses that are needed to determine the parasites present in these soils, therefore, this analysis will have to rely on construction and artifactual data.

In order to address these questions at Berwind, we excavated both pre-strike and post-strike middens and privies as well as conducted an overall site survey and recording project. Privy construction changed over time from presumably wood to stone to cement lined. Certainly by the late 1800s the privies in cities and towns across the country were moving away from wood lined privies to privies with impervious linings. Most would have been stone lined and regulations for the cleaning and use of privies would have been put into effect (Geisman 1993; Stottman 2000; Carnes-McNaughton and Harper 2000).



By looking at privy construction, we can determine whether the sanitary practice ideals of the time were being upheld and whether construction changed over time. If construction became more standardized, that would suggest more regulation and concern with overall public health. We will also compare medicinal bottles from the three areas (Area K, B and T) to look for variations over time and between ethnicities.

At Ludlow, the relative standardization of such features such as privies may suggest a high degree of centralized organization of tent colony affairs. However, we have yet to uncover a convincing privy to examine the construction techniques or look at the soil parasites to inform on tent colony health. We will discuss the one locus believed to be a privy and the construction of the pit. However, at Ludlow the project will have to rely mainly on artifacts to tell us about the health of striking miners and their families. Because medicine bottles are a valuable source of information on health, the project will examine the bottles and fragments from the overall site of Ludlow to inform on health and sanitation at the tent colony.

a) Berwind

Survey records from the 1998 systematic site survey and recording of the company town of Berwind reveal five (5) cement lined privies (only two of which were recorded in the 1998 pedestrian survey as Features 72 and 74) in Area B, the post-strike occupation of the camp, and ten (10) cement domestic foundations (Features 29-38). One of these features In Area K, the pre-strike occupation area of the camp, nine (9) stone domestic foundations were recorded (Features 230, 232-234, 238-242 and 244). However, zero (0) privies were recorded or mapped during the pedestrian survey in 1998 for the pre-strike Area K. This does not mean the privies were not present in this area of camp, only that they were not cement lined and therefore, the crew did not recognize any features as privies. They would most likely have appeared as small depressions in the ground, which were not recorded by the survey crew even if they were observed. During surface clearing of the area during the 1999 field season, the crew noticed several small depressions. One of these depressions was tested and did produce a privy. In School Canyon, Area T, (the African American Barrio according to oral informants) contained fifteen (15) rock and four (4) cement domestic foundations and ten (10) cement lined privies. The fact that they were cement lined suggests that they were not contemporary with those not recorded for Area K, the pre-strike area of camp.

One privy in both Areas B and K was excavated during the 1999 field season. These excavations reveal not only changes in privy construction but also use between 1916 and 1931. A brief summary of the results from these two excavations will be offered here. For detailed account of stratigraphy, artifact counts and descriptions please see the excavation results in the previous section of the report on the Archaeological Findings for 5LA2175 Berwind Canyon.

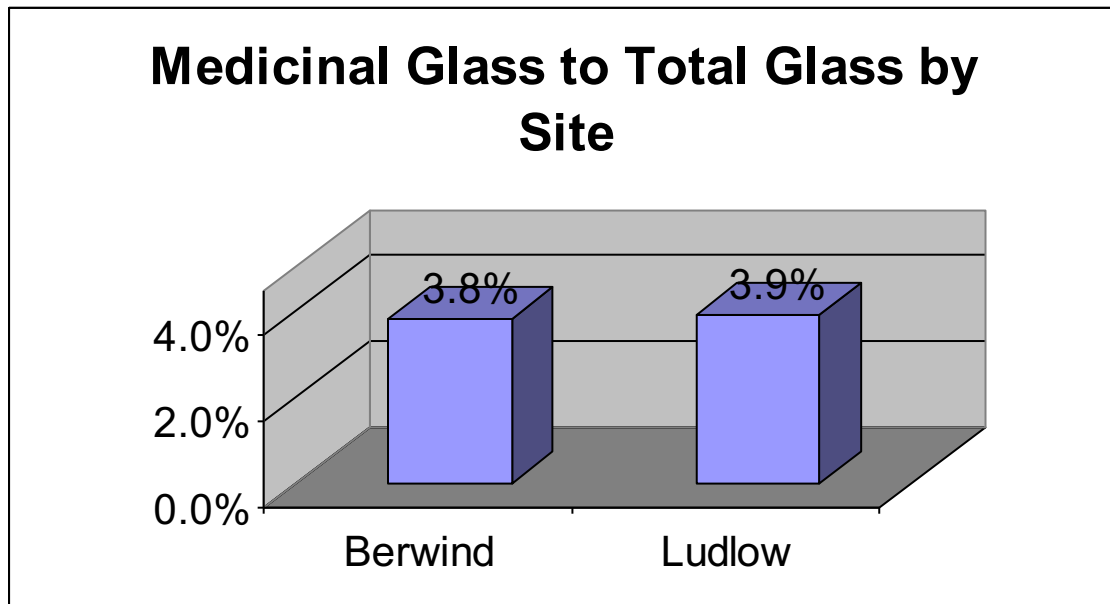
The privy in Area K, labeled Feature 2 during the 1999 field season excavations was a surface depression located at N1045/E1002. The feature measured approximately 2.4 meters by 2 meters and was approximately 1.25 meters deep. It appears to have been a double privy associated with one of the duplex houses in the area. A total of 22 separate stratigraphic contexts were identified. In Area K, 8452 artifacts and 20.1 kg of scrap metal and cans were recovered from the privy deposits. Of the six (7) bottle maker's marks available for this feature, four are for medicinal purposes: two (2) come from

Hirsch's Malt Whiskey/For Medicinal Use, one (1) reads Dr. S. Pitcher's Castoria, and one (1) reads Sample Bottle...Dr. Kilmer's/Swamp-Root/Kidney [Liver and Bladder] Cure/Binghamton, N.Y. These medicinal bottles will be discussed at length in the next section. In addition to these, metal scraps and cans, architectural, food, ceramics, other bottles and glass remains are in abundance. Wood was recovered in several strata, suggesting that the privy was wood lined. The privy appears to have been covered with dirt upon disuse, but not cleaned out as the range of artifacts date from the late 1890's through post 1905.

The privy in Area B, labeled Feature 4 during the 1999 field season excavations was a single cement lined privy. This feature measured approximately 1.75 meters by 2 meters and 90 centimeters deep. Three strata were identified for this feature. Only 742 artifacts were recovered from this feature and 237 of these were from a single complete cow skeleton that had been stuffed into the open privy hole then buried. One (1) embossed bottle was recovered from the feature, which read "Dr W. [B.] Caldwell's Sy[rup] [P]ep[sin]/ Monticello [Illinois]". This bottle, along with a handful of other very small artifacts including a shell button and a copper alloy coin and a few other bottle fragments are likely the only remaining original privy deposit materials left in the privy. It appears that the privy was cleaned out regularly and upon disuse as previously mentioned.

Upon comparing these two features, it becomes obvious that construction and cleanliness of these features changed over time. The institution of the Rockefeller plan in 1915 standardized and centralization the construction of privies as well as the setting a standard for cleaning of the privies. The plan set the responsibility of constructing and cleaning the privies on the company. It also dictated the frequency of cleaning to once a week and the frequency of privies to one per household or duplex. In addition, laws governing the construction of the privies set forth by the state of Colorado were also upheld with the institution of the Rockefeller plan. The move to cement lining seen in the post strike privy helped prevent the leaching of waste, bacteria, and parasites into the surrounding soils that occurred with a permeable lining such as wood found in the pre-strike privy. In addition the practice of cleaning out the privy became much more common after the turn of the century in most cities and urban areas. This also helped to cut down on the spread of diseases such as typhoid, cholera and dysentery.

Generally, the number of total medicinal glass in any glass assemblage is miniscule, and the number of complete bottles or even embossed bottle parts can be counted on one or two hands. This makes doing any kind of statistical analysis unfeasible. This is the case for both Berwind and Ludlow (for medicine glass frequencies at each site see *Figure 65*). Therefore, this discussion will concentrate on describing what patent medicines were found at each site and in which locus, and what they were used to treat. By doing so, we can begin to understand the types of ailments the miners and their families believed they suffered from. This section will first describe what was found at both Ludlow and Berwind. Next, a discussion of the medicines and their history will be presented for all the embossed medicine bottles for both sites. Then, a study of what types of medicines were found in each locus of both Ludlow and Berwind will be compared within each site. We will concentrate on trends in specific areas and over time. Finally, a comparison between Ludlow and Berwind, will address the quality of care the miners received in the camp as compared to what they received while on strike.



**Figure 65:** shows the frequency of all medicinal glass (both fragments and bottles) within the total glass assemblage.

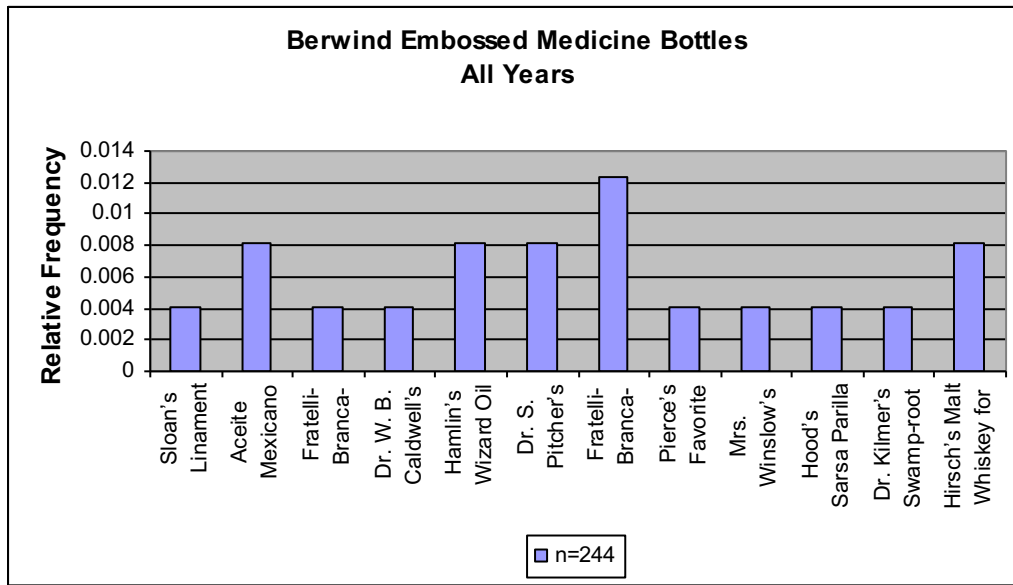
#### *Berwind Medicine Bottles Recovered*

For all three years, only 3.8% of the total glass assemblage recovered at Berwind were medicine bottles. A large portion of the complete or embossed fragments of medicine bottles came from the two excavated areas B and K from the 1999 field season. Medicine bottles were found in both the privies and midden's. However, a few were also recovered during the 1998 mapping and reconnaissance project and test excavations from the 1998 and 2000 field seasons. See *Table 13* for a list of the areas from which the embossed bottles were found.

Medicine	A	B	K	W
Sloan's Liniment	1			
Aceite Mexicano		2		
Fratelli-Branca-Milano Bitters		1	3	
Dr. W. B. Caldwell's Syrup Pepsin		1		
Hamlin's Wizard Oil			1	1
Dr. S. Pitcher's Castoria			2	
Pierce's Favorite Prescription			1	
Mrs. Winslow's Soothing Syrup			1	
Hood's Sarsa Parilla			1	
Dr. Kilmer's Swamp-root Kidney/Liver and Bladder Cure			1	
Hirsch's Malt Whiskey for Medicinal Use			2	

**Table 13: Embossed medicine bottles by area at Berwind.**

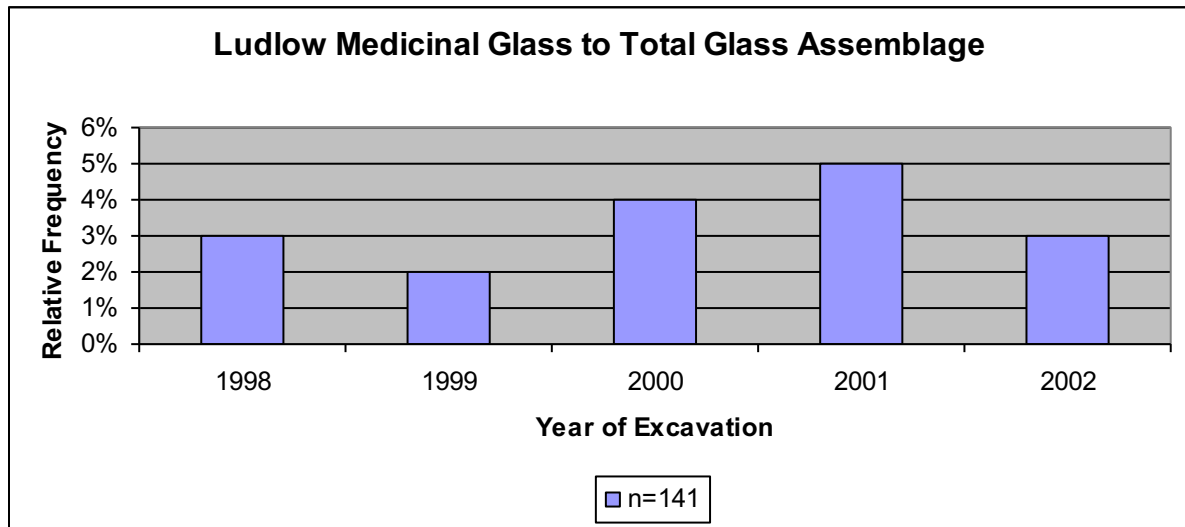
A total of 18 embossed bottles or fragments that allowed identification were recovered from Berwind over the three years of testing and excavation (1998-2000). Other bottles were recovered with tick marks (n=4) for measuring medicines and still more had contained medicines, but were missing the label or the section of the bottle with the embossed maker's mark. (n=222). This gives us a minimum vessel count of 22, and a total medicinal assemblage of 244 pieces at Berwind. A detailed discussion of which medicines were found and their uses will be discussed below.



**Figure 66: shows the relative frequencies of each known medicine for all areas of Berwind 1998-2000.**

**b) Ludlow**

At Ludlow, medicine bottles made up 3.9% of the total glass assemblage for the field seasons 1998 through 2002. While the amounts recovered per year fluctuated slightly, the frequency of the medicinal glass ranged from 2-5% with an average of 3.9%. (See *Figure 67*).



**Figure 67:** shows the relative frequency for medicinal glass to total glass assemblage by year of excavation.

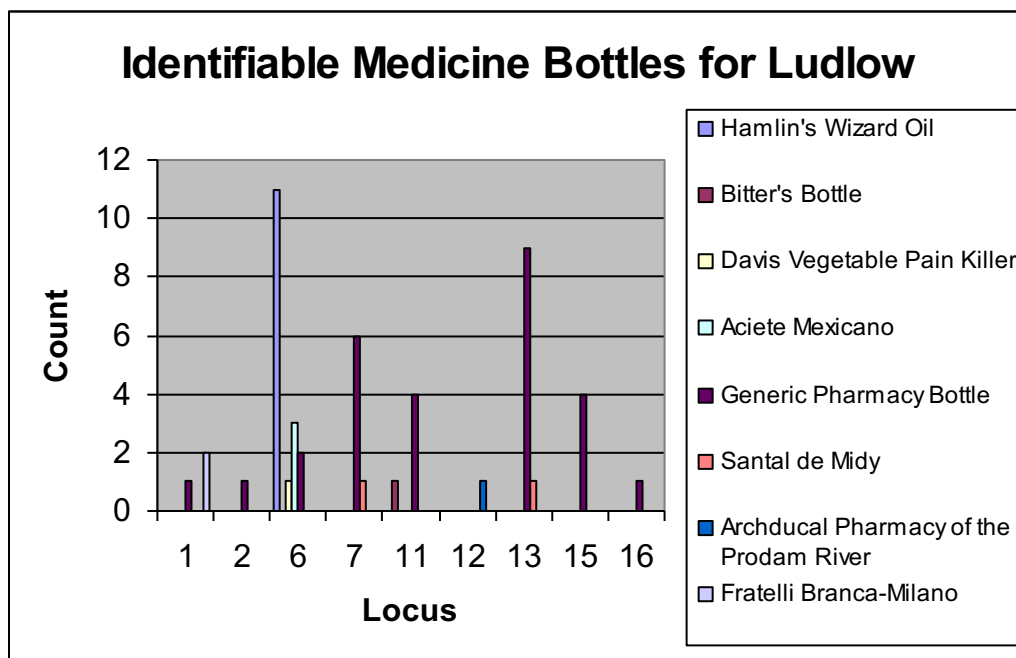
Again, like in Berwind, the largest percentage of embossed and identifiable medicine bottles came from what we believe was a privy (Feature 6) (See *Table 14*). This makes sense in both sites, since the common belief is that alcohol and medicine bottles are often deposited in privies. In fact, our reports show that a high frequency of our alcohol bottles and bottle caps came from this possible privy feature. The remaining few vessels were dispersed throughout the midden, tent outlines and cellar features.

	1	6	7	11	12	13
<b>Hamlin's Wizard Oil</b>		11				
<b>Other Bitter's Bottles</b>				1		
<b>Davis Vegetable Pain Killer</b>		1				
<b>Aciete Mexicano</b>		3				
<b>Santal de Midy</b>			1			1
<b>Fratelli-Branca-Milano Bitters</b>	2(?)					
<b>Archducal Pharmacy of Prodam River</b>					1	

**Table 14:** shows the types of identifiable medicine bottles recovered at each Loci at the site of Ludlow.

A total of 20 identifiable bottle or bottle fragments were recovered from Ludlow in the five years of excavation from 1998 through 2002 (see *Table 14* and *Figure 68*). Bottles were recovered with tick marks (n=9) for measuring medicines. Unidentifiable bottle body parts were numerous and included bases and necks (n=247). This gives us a minimum vessel count of 53, and a total medicinal assemblage of 329 pieces at Ludlow.

A detailed discussion of which medicines were found and their uses will be discussed below and combined with the medicine types found a Berwind.



**Figure 68:** Identifiable medicine bottles recovered from Ludlow.

### Descriptions of Patent Medicine Types Recovered

Before comparisons of the types of ailments treated between Berwind and Ludlow and Pre and post-strike Berwind can be made, a description of the types of medicines that were consumed must first be described. This section will discuss the types of patent medicines found for both Berwind and Ludlow together by medicinal type. For each medicinal type, we will include a brief description of the brands of patent medicines recovered and of ailments they advertised to cure. Whether or not they were effective is not an issue in this discussion. For a brief overview of all identifiable patent medicines found at both sites and what they claimed to cure see Table 15.

Medicine	Ailments Treated
Sloan's Liniment	Nerve and Bone Liniment
Aceite Mexicano	Unknown

Archducal Pharmacy of the Prodam River	Unknown
Fratelli-Branca-Milano	Bitters billed as Anti-Cholera and Tonic
Davis Vegetable Pain Killer	General Pain
Dr. W. B. Caldwell's Syrup Pepsin	Cough and Cold
Hamlin's Wizard Oil	Rheumatism, Lame Back, Headache, Neuralgia, Toothache, Earache, Sore Throat, Diphtheria, Catarrh, Inflammation of the Kidneys and All Painful Affections
Dr. S. Pitcher's Castoria	Aid to Constipation, especially in Children
Santal De Midy	For Kidney, Bladder and Venereal Diseases
Pierce's Favorite Prescription	Advertised as "A cure of those chronic weaknesses and complaints of females"
Mrs. Winslow's Soothing Syrup	For Teething babies
Hood's Sarsa Parilla	General Cure-All, Label states: contains 16½% alcohol
Dr. Kilmer's Swamp-root Kidney/Liver and Bladder Cure	Kidney, Liver and Bladder as well as Venereal Diseases
Hirsch's Malt Whiskey for Medicinal Use	General Cure-all
Davis Vegetable Pain Killer	Liniment for Pain

**Table 15: List of total patent medicines recovered for both sites and what they claim to cure.**

### 1. Bitters

Perhaps the most controversial as medicine are Bitters. Bitter bottles and fragments were prevalent at both the sites of Ludlow and Berwind, specifically Fratelli-Branca-Milano Bitters. According to Toulouse (1970:62),

It was in the bitters field that variety was the order of the day-the list of brand names exceeds one hundred. Many were labeled as tonics and cures and it is difficult to tell whether the miner drank them as 'likker' or medicine, or both.

Toulouse (1970:63) also reminds the reader that:

Before we classify even the so-styled medicinal bitters as actual medicines, it should be recalled that bitters originated during the early 1700's as a means of classifying whiskeys and gins in the medicinal field by adding herbs and various flavoring substances, and thus taking them out of the whiskey tax bracket. They could be classified as medicinal tonics.

The practice spread to the United States through England. Bitters bottle labels advertised to cure ailments ranging from stomach, kidney and liver problems, to jaundice, dyspepsia, worms, dizziness, loss of appetite, darting pains, colds and fevers. Certain brands even claim to cure hair loss and dandruff. Bitters generally had an alcohol content that ranged from 15% up to 40% and the dosage ran to full wine glasses three of four

times daily (Toulouse 1970, Fike 1987). Bitters were attractive to otherwise temperate drinkers and women because of the claim that the alcohol content was “only sufficient to hold in solution the extracted medicinal properties” (Toulouse 1970:63). This no doubt assuaged the conscience of an otherwise temperate drinker. Ginger beer/ale and Sarsaparilla, which originally contained alcohol and was purported to have medicinal properties, fit into this category for this report.

Bitters found at Berwind include Fratelli-Branca-Milano as well as generic bitters bottles that most likely held paper labels. These bottle fragments were recovered from both Areas B and K or both the post and pre strike areas respectively. Frantelli-Branca-Milano bitters bottles were also recovered at Ludlow in Locus 1. Frantelli-Branca-Milano bitters were billed as an anti-cholera and tonic remedy, with a 78 proof (nearly 40% alcohol content) herbal formula (Fike 1987:163). Prior to 1921, when a branch office was opened in New York, these bitters were imported from Italy.

## 2. Tonics

The next category, tonic, was very similar to bitters. These were used when the miner or his family felt generally “run down” (Toulouse 1970:64). There were over one hundred known brands of Sarsaparilla as well as other like tonics. Toulouse (1970:64) informs us on Sarsaparilla: “it must have been a pleasant tasting tonic, and perhaps the alcoholic content was the attraction.” This must have been the case for the other tonics as well.

The project recovered bottle and bottle fragments for several tonics including: Hirsch’s Malt Whiskey for Medicinal Use, Hood’s Sarsaparilla, and Dr. Pierce’s Favorite Prescription. The label on Hood’s Sarsaparilla once read:

Hood’s Compound Extract Sarsaparilla-Contains 16 ½ Per Cent Alcohol.  
This Preparation combines in and agreeable form the medicinal properties  
of Sarsaparilla, Mandrake, Gentian, Dock, Dandelion, With other  
Approved Alternative And Tonic Substances. Prepared only By C.I. Hood  
Co., Manufacturing Pharmacists, Lowell Mass., U.S.A., Price \$1.25. (Fike  
1987:217)

Hood’s Sarsaparilla was recovered from Berwind’s Area K or the pre-strike area. Unfortunately, we were unable to find reference to the uses for Hirsch’s Malt Whiskey for Medicinal Use. Both bottles of Hirsch’s Malt Whiskey were recovered from Berwind Area K (pre-strike). Dr. Pierce’s Favorite Prescription, was billed as the only guaranteed cure for women. The label advertised it as “a cure of those chronic weaknesses and complaints of females” (Fike 1987:177). Dr. Pierce’s Favorite Prescription was recovered from Berwind’s Area K (or the pre-strike area).

## 3. Liniments

Due to the hard work involved in mining and the damp, dusty, and ill-ventilated, working conditions, liniments must have been an important Liniments were generally used for muscular pains. Some that were available back then are still on today’s market at least in the 1970’s. These include two that were recovered during the project’s excavations; Hamlin’s Wizard Oil and Sloan’s Liniment. Davis Vegetable Pain Killer was another liniment recovered from our excavations. Finally, one that we believe to be a liniment, but are unsure of it’s exact use, was Aciete Mexicano.



Aciete Mexicano was manufactured in Trinidad Colorado by the Hausman Drug Company. Bottles embossed with this label were recovered from both Berwind in Area B (the post-strike context) as well as at the site of Ludlow in Locus 6, which we believe to be the privy. The presence of Aciete Mexicano in both strike and post-strike context suggest a long history of use of this medicine in the area, not unsurprising since the medicine was produced in Trinidad, Colorado.

Sloan's Liniment was manufactured in New York and purported to "kill pain" and was advertised as "nerve and bone liniment," (Fike 1987:137). Sloan's Liniment was recovered from Berwind's Area A. Davis Vegetable Killer, also billed as a liniment, and produced in Montreal and New York. One bottle containing Davis Vegetable Killer was recovered from Ludlow at Locus 6 (the presumed privy).

Hamlin's Wizard Oil, was introduced in Cincinnati, Ohio in 1859 and made popular by medicine shows. The manufacture of this medicine moved to Chicago in the 1860s. While we list it as a liniment, the bottle claims that it can be used to cure just about any ailment and is for external and internal use. The potion had a 65% alcohol content and while advertised as a liniment, the label also read:

Hamlin's Wizard Oil For Internal & External Use. Cures Rheumatism,  
Lame Back, Headache, Neuralgia, Toothache, Earache, Sore Throat,  
Diphtheria, Catarrh, Inflammation of the Kidneys and All Painful  
Afflictions (Fike 1987:193)

It is not surprising that the project recovered so many fragment of this medicine considering all the ailments that it claims to cure. At Berwind, Hamlin's Wizard Oil was found in both Areas K (pre-strike context) and W. At Ludlow, at least 11 bottles were found in Locus 6 (the possible privy).

#### 4. Kidney/Liver/Bladder

Two different medicines used for the treatment of the Kidney, Liver and/or Bladder were recovered from our excavations: Santal de Midy and Dr. Kilmer's Swamp Root Kidney/Liver and Bladder Cure. While these medicines are advertised as a cure for ailments of the kidneys and liver or bladder, they were also often used to treat venereal diseases. Santal de Midy, manufactured in Paris and imported through New York by E. Fougere, had a label that read, "Santal Midy Capsules, For Kidney & Bladder Troubles, Venereal Disease. Imported by E. Fougere, N.Y." (Fike 1987:179). Two of these bottles were recovered from Ludlow, one at Locus 7, and the other at Locus 13. The other "kidney" remedy, Dr. Kilmer's Swamp-root cure was manufactured in Binghamton N.Y. This bottle was recovered from Berwind in Area K (the pre-strike context).

#### 5. Children's Remedies

Three medicines recovered from Berwind were advertised specifically for use treating children. Two different medicines were recovered that purport to treat digestive ailments and were advertised toward the treatment in children. These are Dr. W. B. Caldwell's Syrup Pepsin and Dr. S. Pitcher's Castoria (Fike 1987, Toulouse 1970). The third was advertised as a treatment for teething babies, Mrs. Winslow's Soothing Syrup (Fike 1987).

Pitcher's Castoria was billed as an aide to constipation, especially for children. It claimed to be a "...pleasant and complete substitute for Castor Oil," (Fike 1987:177).

Dr. Pitcher's Castoria was manufactured in Boston, Massachusetts. Two bottles of Dr. Pitcher's were recovered from Berwind's Area K (the pre-strike context). Dr. W. B. Caldwell's Syrup Pepsin was manufactured in Monticello, Illinois. It was billed as a remedy for digestive troubles particularly in children (Toulouse 1970:63). One bottle was recovered from Berwind's Area B (post-strike context).

Mrs. Winslow's Soothing Syrup was manufactured in New York. It claimed to be bottled as a treatment for problems of teething babies (Fike 1987:231). After the passage of the 1906 food and drug act, the word "soothing" was removed from the label. One bottle was found in Berwind in Area K (pre-strike context).

Surprisingly and conspicuously absent from both the coal company town of Berwind and the tent colony of Ludlow are cures for lung ailments. In the dark and damp conditions with the constant coal dust hanging in the air, it is surprising to find little complaints for lung troubles reflected in the medicine bottles recovered from both Ludlow and Berwind. Although, it could be that the preferred cures for lung problems carried paper labels that have been lost over time.

#### c) Comparison of Medicine Bottles Recovered at Berwind to Ludlow

The frequency of medicinal bottles at Berwind to those recovered at Ludlow are nearly identical, see *Figure 65* above in the pre-strike era at Berwind. The types of medicines used in the two locations differed slightly, but not remarkable. Both bitters (which may or may not have been used for medicinal purposes) and liniments were found in abundant quantities at both locations. In addition, kidney, bladder and liver cures (also used for venereal diseases) were recovered in similar quantities at both locations.

Medicine Type	Patent Medicine Brand	Camp	Number Found
Bitters	Fratelli-Branca Milano	Berwind	4
		Ludlow	2
	Other Bitter's Bottles	Ludlow	1
Liniments	Aceite Mexicano	Berwind	2
		Ludlow	3
	Hamlin's Wizard Oil	Berwind	2
		Ludlow	11
	Sloan's Liniment	Berwind	1
	Davis Vegetable Pain Killer	Ludlow	1
Tonics	Dr. Pierce's Favorite Prescription	Berwind	1
	Hood's Sarsa Parilla	Berwind	1
	Hirsch's Malt Whiskey	Berwind	2
Kidney, Bladder, Liver, Venereal Disease	Dr. Kilmer's Swamp-Root Cure	Berwind	1
	Santal De Midy	Ludlow	2
Children's Remedies	Dr. W. B. Caldwell's Syrup Pepsin	Berwind	1
	Dr. S. Pitcher's Castoria	Berwind	2
	Mrs. Winslow's Soothing Syrup	Berwind	1

**Table 16: Types of medicines recovered from Ludlow and Berwind**

These findings suggest that the perceived health, was not dramatically different between the two different living conditions of the camp and the tent colony.

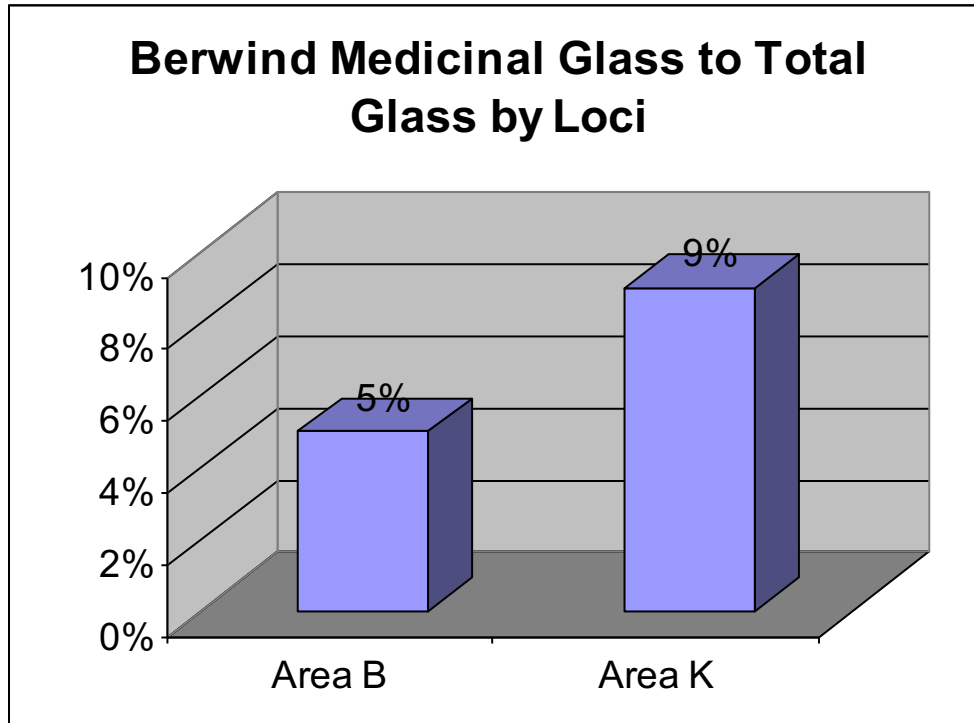
	Berwind-K			Berwind-B			Ludlow		
	Observed (Percent)	Expected	$\chi^2$ Value	Observed (Percent)	Expected	$\chi^2$ Value	Observed (Percent)	Expected	$\chi^2$ Value
Pharmaceutical	450 (58%)	357.9	23.7	127 (32%)	182.2	16.7	36 (23%)	73.0	18.7

**Table 17: Chi-squared tests for pharmaceutical bottles from Ludlow and Berwind**

Table 17 shows a decline in the use of pharmaceuticals, at least as measured by glass counts. Pharmaceutical bottles were 22% of the identifiable glass at Ludlow, 58% at Berwind-K, and 32% at Berwind-B. Because of their high alcohol content, along with other narcotics, consumption of patent medicines has been described as a form of secret drinking, especially among women, for whom overt consumption of alcohol was discouraged. While many patent medicines were addictive, their medicinal claims, however false, should not be ignored. Part of the decline from Berwind-K to Berwind-B can be explained as a result of tighter legislation of patent medicines, such as the 1906 Pure Food and Drug Act. This may explain why Ludlow has less than the earlier Berwind-K site, but does not explain why Ludlow has less than the later Berwind-B site. The decline is probably not due to a substantial improvement in health. It may be that there was simply less disposable income to spend on remedies, or that there was less need to rely on self-medication, as the union seems to have supplied doctors.

d) Pre and Post-Strike Comparisons in Medicine Bottles at Berwind

When comparing the access to and availability of medicinal bottles between pre and post strike contexts at the company town of Berwind, we found that total amounts of medicinal bottles decrease. See *Figure 69*.



**Figure 69:** Comparison of pre and post strike medicine bottle frequencies at Berwind.

However, because the privy contexts were so thoroughly cleaned out on a regular basis in the post-strike period, this comparison is slightly misleading. When we examine the types of medicinal bottles represented in our pre-strike (Area K) and post-strike (Area B) contexts what we observe are possible ethnic differences and changes in perceptions about “patent” medicines. See *Table 18* for a graphic representation of these observations.

Medicine	B	K
Sloan’s Liniment		
Aceite Mexicano	2	
Fratelli-Branca-Milano Bitters	1	3
Dr. W. B. Caldwell’s Syrup Pepsin	1	
Hamlin’s Wizard Oil		1
Dr. S. Pitcher’s Castoria		2
Pierce’s Favorite Prescription		1
Mrs. Winslow’s Soothing Syrup		1
Hood’s Sarsa Parilla		1
Dr. Kilmer’s Swamp-root Kidney/Liver and Bladder Cure		1
Hirsch’s Malt Whiskey for Medicinal Use		2

**Table 18: Medicinal bottles in Pre and Post-strike contexts at Berwind**

This table indicates that Aciete Mexicano was found only in the post-strike context, Area B. This area of Berwind has also been labeled “Frijole Hill” by oral informants. The preference for this type of patent medicine may reflect ethnic preference rather than changes over time as a result to changing access to medicine. The use of bitters in both contexts is not remarkable, nor surprising. We attribute the prevalence of patent medicines in the pre-strike context (Area K) to a social preference and acceptability of the use of patent medicines during this period. The food and drug act of 1906 outlawed many of these types of medicine, however the dates for Area K pre-date this law. The remote location of the coal canyons at this time would also suggest that the enforcement, or even the knowledge of this law may have been slow to travel to this part of southern Colorado. The fact that the privy in Area K was not cleaned out as thoroughly as Area B would also account for the presence of these patent medicine bottles. Medicine bottles are frequent in privies throughout the United States indicating that they were often discarded in privies.

#### *4. Defense*

The establishment of the Ludlow community was a unique situation as it was not designed for community development or economic trade or resource procurement like most communities in the American West. It was a political statement that acted as a material representation of the union and strikers’ ideology. Yet, as optimistic as the union attempted to make space, the realities of a strike emerged in everyday life. As strikers and their families faced company guards and the National Guard harassment and intimidation as well as violence, defense of home and community became a central aspect in the design of the Ludlow strikers’ colony. Through the layout of the colony and material features, such as rifle pits and tent cellars, strikers created a sense of protection and defense from the harsh social and natural environment. This defensive landscape also allowed the union to control outsiders’ perception of the union’s space helping to promote their own image and for a time limit attacks on the colony.

Artifacts also show the violent reality that was a mundane fact for the strike region. The main artifacts that will provide information about defense, and about the battle itself, are gun parts, cartridges, and bullets. Cartridges and gun parts disclose the sorts of weapons possessed by strikers. Bullets, if they show evidence of having been fired, will most probably be from National Guard guns, making possible a comparison of the relative armaments of the two sides.

##### **(1) Community Layout**

The strike of 1913-1914 was a conflict in labor relations that was fought as much in the strike fields as it was in the arena of public opinion. In this struggle, the control of perception allowed the union to promote a specific image to the public, and to create a defensive posture that limited the public in seeing activities that they did not want outsiders to see. The layout of tents created a general protection for the colony by limiting views into the colony as well as limiting the level of harassment from outside sources. Most importantly, the orientation of the colony allowed a view of outsiders’ movements throughout the lands surrounding the Ludlow colony.

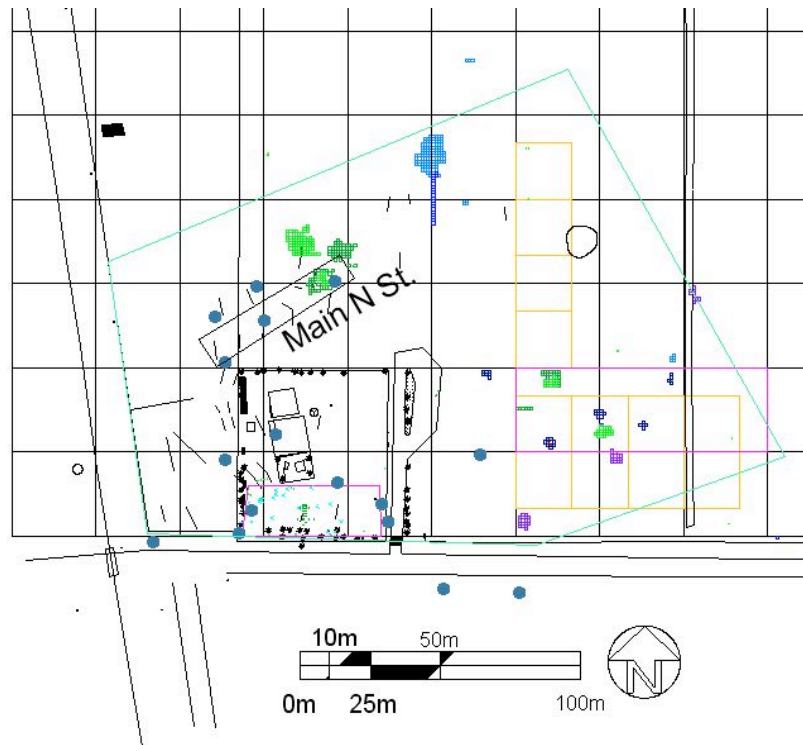
The photographic overlay has led to an understanding of the general spatial layout of the colony, and with this understanding, the limited view of the colony outsiders had. Historic photographs (*Figure 70*) show that tent rows were offset from the main road running by the site. This offset would have drastically restricted the public's view of the colony to only the perimeter row of tents. This could allow the union to use these tents to promote their community by making these tents show tents. By making these outside tents pristine examples of sanitation and other material practices valued by the public, the union could lessen enforcement of such practices inside the colony, thus allowing resources and community investment to occur else where. Such a direction on the part of the union is supported by the fact that as some of the photographs of the colony have street names in the title, specifically that of "Front St." According to photographs of Front St. that were positioned using the photographic overlay, Front St. is the street that is seen and open to the public, thus suggesting that the union recognized where the public's perspective of the colony was placed. From historic photographs, the location of the colony's doctors' office tent can be identified as being located on Front St. The location of the colony's doctor was not efficient to daily needs as it was not centrally located in the colony. However, it does appear to have been on show to the public rather than being located in a centralized position within the colony.



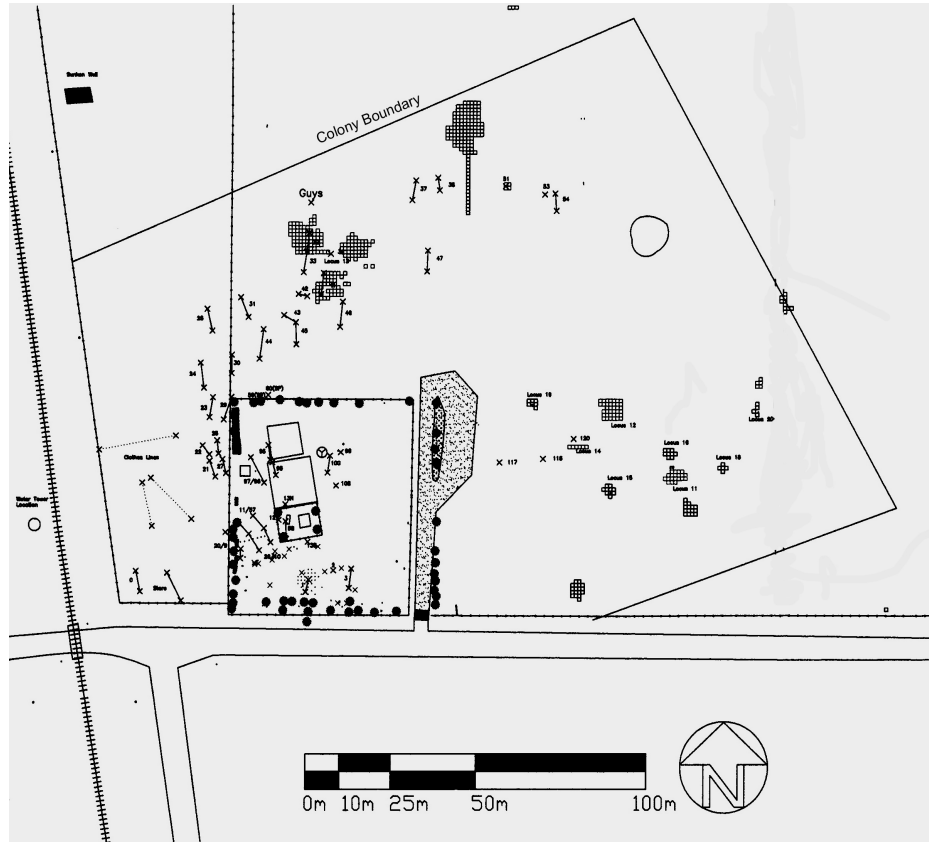
**Figure 70:** Photograph of Ludlow tent colony, Courtesy of Denver Public Library.

The photographic overlay also allows us to discern the layout and orientation of the colony. Project archaeologists predicted that photographs with the same street names within the title, such as Front St., Main St., and Main St. N, would be different perspectives along the same road. By overlaying these photographs along the landscape to determine the position of the photographer when taking these photographs, a pattern identifiable as a street route should be identifiable. Such patterns did appear (*Figure 71*),

specifically that of Main St. N. This pattern suggests an orientation of the colony of about 45 degrees off the county road. The layout of identified and excavated features confirms such an angled orientation off the county road. This orientation evidence along with limits to the colony identified through photographs and the location of features makes a discernable boundary to the colony that follows the angled orientation of the settlement (*Figure 72*).



**Figure 71:** Map showing evidence from photographic overlay of streets in colony.



**Figure 72:** Approximate Colony Boundary showing 45-degree alignment off county road and railroad.

With this boundary and orientation of the colony, colonists were able to observe movements throughout the strike region around the Ludlow strikers' colony. The colony itself was positioned in the center of many of the transportation and community centers in the Ludlow vicinity. Based on the main road leading to both Berwind and Delagua Canyons, the union could track movements of people in and out of the canyons, by the roads. Beyond the roads, the angle of the colony allowed a direct view of the mouth of Berwind Canyon. Those entering or leaving the canyon either, company guards, the National Guard, specifically Company B stationed at Cedar Hill, and any strikebreakers could be watched and reacted to accordingly. While Berwind Canyon was under guard to the southwest of the colony, the entrance to Delagua canyon was also viewed with the same eye of threat that the union saw in those moving in and out of Berwind Canyon. This perception of the landscape offered an initial defense, by allowing people to watch the Canyons, the Ludlow depot, the militia camp directly southwest of the colony and the movement in all these areas. Strikebreakers could be stopped and confronted, while materials and people could be hidden in cellars or other storage facilities before the guard entered the colony.

The Ludlow colony went beyond the needs of shelter for the strikers and their families to meet the symbolic and defensive needs required during a strike. It was a materialized picket line that worked more powerfully than a line of people by promoting an image to the public. The orientation of the colony directed public perceptions of



colonists' activities and practices. It also directed the view of colonists towards the surrounding landscape in a defensive manner.

## **(2) Rifle Pits**

As a feature, rifle pits would provide the most definitive evidence of defense in the colony. The testimony offered by members of the National Guard repeatedly state the existence of rifle pits within the colony. However, there has only been a slight suggestion of rifle pits from the archaeological record. The historic description of rifle pits along with a lack of archaeological support of any rifle pits in the colony gives more evidence of the National Guard's perception of space within the colony than the material reality of the colony.

The Colorado National Guard used the evidence of rifle pits to show the danger presented by the strikers. In testimonies for the House of Representatives, the United States Commission on Industrial relations, and the National Guard's own reports on the strike and the Ludlow Massacre, members of the guard provide evidence and suggestion for the existence of rifle pits within the different strikers' colonies, specifically in Ludlow. Albert Felts (House 1914: 389) stated the existence of rifle pits in Forbes Colony. In his testimony, he stated that the National Guard only discovered these pits after the destruction of the Forbes Colony. Ammunition shells located around these features suggested their use as rifle pits. However, he did state that there were pits under the tents, and although there was no evidence for the use of ammunition in the pits under the tents, he did believe they still acted as rifle pits. He denied the existence of rifle pits in the Ludlow colony.

The pits' presence in the Forbes colony did lead guardsmen to assume they did exist in the Ludlow colony. Lt. Col. Edward Boughton speaking about the Ludlow Massacre stated, "You must know, gentlemen, ladies and gentlemen, that in front of the colony on all sides were located carefully constructed earthworks, rifle pits, constructed in such a position as that any return of fire from them was drawn right into the colony." (USICR 1916: 6367). Such a description implies that there was central planning on the part of the union for defending the colony. The construction of the earthworks as well as centering their trajectory into the colony to trap any intruders suggest an assumption on the part of the strikers and the union that their colony would be attacked and that the strikers were going to meet any such move in a violent manner. Capt. Van Cise supported such an interpretation of defensive capabilities in the colony in claiming that strikers did excavate cellars for their women and children to hide in, but did use rifle pits on the sides and inside the colony to trap any soldiers positioned in the colony (USCIR 1916: 7328). Lt. Karl Linderfelt gave the most definitive description of the rifle pits within the Ludlow colony in his description of the events of the Ludlow Massacre. During the fighting of April 20, 1914, Lt. Linderfelt stated that he entered the Ludlow colony in an attempt to save women and children trapped in tents and cellars, but was fired upon from rifle pits in the colony (USCIR 1916: 6894). He also stated that the rifle pits for the most part were located on the south and east sides of the colony (USCIR 1916: 6892). Given such descriptions of their existence and their location, rifle pits should be a definitive presence in the archaeological record of the Ludlow strikers' colony.

Although clearly described by National Guard troops, archaeologists have not identified any rifle pits. Testing and feature identification have identified tent outlines, tent cellars, trash piles, and middens, but have not definitely identified any features

similar to those described by guardsmen as being rifle pits. Based on their description, archaeologically we should expect to find a pit with no other use than as a defensive structure and as such should be limited to artifacts associated with defense such as arms and ammunition. According to Felts's description of the rifle pits identified in the Forbes colony there should be a scattering of spent cartridges. Given the supposed heavy firing during the Ludlow Massacre and the guardsmen's testimony of the heavy use of the rifle pits during the attack, there should be pit like features with heavy amounts of ammunition, specifically cartridges. Given such a criteria, there is only one feature that may be a possible rifle pit, Feature 71. Identified through auger testing during the 1998 field season and excavated during the 1999 field season, its shape provides the closest approximation of a rifle pit. It has a keyhole shape with measurements of 3m east-west and 1.5m north-south. Its size is smaller than the excavated tent cellars of Feature 73 and 74, with Feature 73 at 2m north-south and 4m east-west and Feature 74 at 2.5m north-south and 4m east-west. Its orientation is similar to that of Feature 73 and 74 suggesting a tie with the overall layout of the colony. There is no evidence of any firearm trajectory related to the feature. The artifact evidence of Feature 71 suggests more of a connection with architectural remains than those of ammunition and defense. One .30 caliber center-fire with headstamp of ".30 W.R.A. Co. WCF" is the only artifact related to firearms or ammunition found in the feature (Stratum D), so it is not suggestive of a major defensive feature. With 36% of the artifacts representing the Food group, 10% the architectural group, 5% for the Clothing group, and less than 1% for the Firearms artifact functional group, it is more suggestive that strikers used this feature for domestic purposes rather than a defensive one.

Feature 70, also might be suggestive of a rifle pit because of its position on the site. It is on the south side of the colony, which corresponds to Lt. Linderfelt's description of the placement of the rifle pits and to a National Guard map of the colony made after the massacre (*Figure 73*). It also has three cartridges related to it. However, its depositional history is more reminiscent of a trash pit, and the arms are too few to be suggestive of the heavy fighting of April 20<sup>th</sup>. If it was used as a defensive position, it was more likely an expedient one inspired by the attack than a predetermined defensive feature.

The lack of archaeological evidence of rifle pits in the Ludlow colony is supported by an absence of discussion of rifle pits outside of the guardsmen. No other individual in the archival record describes or even suggests the presence or existence of rifle pits. Given this slighted view of space and features, it appears that the National Guard has perceived the Ludlow Colony as more dangerous than it actually was with the threat of rifle pits. The suggestion of rifle pits from the Forbes Colony probably gave hints of similar features in the Ludlow Colony. The guardsmen do state they had no knowledge of tent cellars before the massacre (USCIR 1916: 7312), and any hints given by earthworks related to colony construction along with traces of movement in and out of tent cellars during the massacre might have suggested to the National Guard that such features were of a purely defensive nature. However, there does not seem to be any feature in the Ludlow strikers' colony that acted as strictly defensive.

### **(3) Tent Cellars**

As one of the most definitive feature types of the archaeological record, tent cellars acted as the center for household activities for many striking families, and were

the sole method of protection for most of the strikers. Strikers did not design tent cellars for violent actions. In an intimidating environment, the tent cellar established a place of security for women and children. The two company owned machine guns (USCIR 1916: 6830), the constant harassment of searchlights (House 1914: 317), and CF&I's armored car the "Death Special" (USCIR 1916: 6354) posed a constant threat and worked to intimidate striking families. The canvas tents provided little protection from company bullets and the harsh winter of 1913-1914. One informant project archaeologists interviewed visited the colony when he was about seven, and stated that the cellars were dug because they were warmer in winter (Tapai *pers. comm.*). Besides winter, hiding items and people in the privacy of the cellar provided a sense of safety and stability for the colonists.

Tent cellars exemplified the private scale in the Ludlow striking community. Strikers constructed tent cellars, or "caves" as referred to by Pearl Jolly (USCIR 1916: 6348) under many of the tents. The size of the cellars based on Feature 73 and 74 ranged in size from 10 to 20 cubic meters respectively. Such a size allowed for added storage or living space. In the case of Feature 74, the large size allowed for added living space. However, the violent situation in the area forced the nature of space in the cellar to be more for protection than just mundane daily life.

The construction of cellars worked to ensure a maximum level of protection of people, material, and privacy. The cellar under tent number 58, what became called the "Death Pit" after the Ludlow Massacre, exemplified most of the cellars in the colony. According to Mary Petrucci, it had earthen stairs leading from the front of the tent to the base of the cellar, six feet below the surface (USCIR 1916: 8193-8194). Strikers placed wooden timbers above the cellar providing not only a floor for the tent, but also covering for the cellar. This covering provided not only basic sanitation by keeping dust and dirt in the tent down, but it also protected any stored materials, and people from sight on the surface. The National Guard stated that they had no knowledge of tent cellars until after the massacre (USCIR 1916: 7312). With no such knowledge of cellars, any prohibited goods, ammunition, or items for private use would be protected.

The most important item protected by the cellar, were the inhabitants of the tent. Cellars were for protection and defense; they did protect strikers' and families from searchlights and gunfire. The hidden nature of tent cellars also aided in the protection of materials in hiding ammunition and other goods from the National Guard, UMWA, and other strikers. The historic descriptions of cellars concerning their use and the materials associated with them suggest multiple uses for the cellars, but protection was most likely the basic function. Pregnant women exemplified this sense of security in their use of cellars as an area to give birth rather than in the tent on the surface (USCIR 1916: 8188). Children often slept in the cellars as bedrooms and their parents instructed them to hide in the cellars if the colony were under attack. This belief caused many families to dive into cellars during the National Guard attack on April 20, 1914. Mrs. Margaret Dominiske sought shelter in a neighbor's cellar to avoid bullets (USCIR 1916: 8186). Mrs. Costa, one of the victims of the massacre objected to Mary Petrucci's suggestion of leaving the cellar for a safer location, feeling they were as secure as possible (USCIR 1916: 8194).

#### **(4) Ammunition and Firearms**

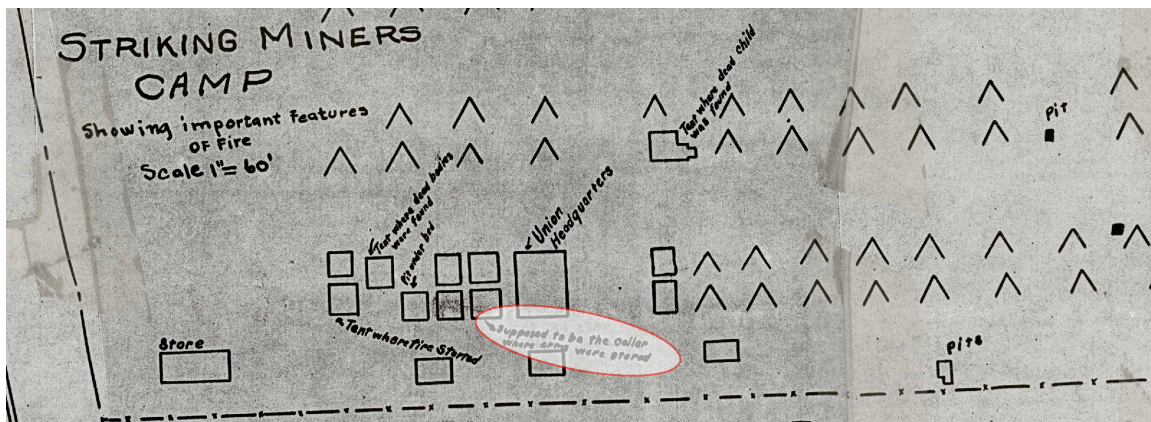
Examining arms, spent, and unspent ammunition could allow project archaeologists to address two further issues related to defense. These issues include: the

stockpiling of weapons and arms by the colonists, and an examination of the events related to the battle on the day of the massacre. This analysis focuses on the ammunition found at the site of Ludlow. It is largely based on the analysis of the ammunition done by Erin Saar, for her undergraduate honors thesis. Most colonists took their firearms with them when they fled the tent colony on April 20, therefore, there are no firearms to examine from the time of the massacre. The exception is one revolver cartridge barrel, but since there is no comparison material for this one gun barrel, it is not used in this analysis.

Historic accounts from the time suggest that strikers were heavily armed and that they stockpiled weapons and ammunition. One excerpt from the 22<sup>nd</sup> Annual Report of the Colorado Fuel and Iron company stated that

Strikers only surrendered a portion of their arms...First delivery to state militia was 15 guns that were of 'obsolete pattern.' A few more were from time to time obtained, but at no time were the strikers' forces without a full equipment of arms and ammunition, which kept in hiding. CF&I 1914

Historians claim (Gitelman 1988; McGovern and Guttridge 1972) that strikers used the cellars beneath their tents to store ammunition as well as protect themselves from future conflicts. There is little historical evidence for these claims aside from some of the primary sources related to the company literature and propaganda. One map created by the militia showed the location where a stockpile of arms. See *Figure 73*. To date there has been no physical evidence of guns or ammunition stockpiles at the colony.



**Figure 73:** Militia map showing Ludlow striker's tent colony with key features labeled. The area circled in red reads "supposed to be the cellar where guns were stored." Courtesy of Bessemer Historical Society.

According to the historic accounts, ammunition was stored in the cellars. In order to test whether these accounts are accurate, project archaeologists examine the remains from several of the buried features excavated at the Ludlow tent colony. First, we determined whether there was ammunition found within the buried features. If so, we examined whether the ammunition had been fired. If the ammunition was stockpiled, we assumed that it would have been unfired. Second, we looked to see if the ammunition was exploded or melted. The tent colony burned on April 20, 1914. If ammunition had been stored in the cellar, the gunpowder within the shell casing would have ignited exploding the cartridge. Finally, we examined whether the cartridge was found with

other cartridges of the same make and model. Large amounts of the same type of ammunition, would indicate stockpiling behavior.

The bulk of the ammunition found at Ludlow came from Loci 1, 11, 12, and 13. Ammunition was also found Loci 3, 4, 6, 7, 9, 15, and 16. Out of the 122 pieces of ammunition recovered during excavation, 78 were from Locus 11, Feature 73. This was by far the largest amount of ammunition from any one feature. In addition to those, 28 were from Locus 1, making up the next largest amount. At Locus 13, along the western edge of the colony, 27 were found. And finally, 15 were from Locus 12.

In order to test for stockpiling behavior in the Ludlow Tent Colony, project archaeologist focused on Loci 11 and 12, which were the two fully excavated cellars. As noted above, large quantities of ammunition were in fact found in buried features. Within the two excavated buried cellars, Locus 11 (Feature 73) and Locus 12 (Feature 74), most of the ammunition was unfired. In Locus 11, 96% of the ammunition was unfired, and in Locus 12, 93% was unfired. Twenty-one percent of the ammunition in Locus 11 was exploded, compared to 33% in Locus 12. See *Table 19*. In Locus 11 Feature 73, a large group of ammunition was found within the same stratum level (Stratum D). These were made up of UMC-Remington 30 caliber cartridges and .22 caliber-rim fire cartridges. The group also contained 30 caliber bullets many of which had been melted by the fire and showed no sign of firing or impact. A similar grouping came from Stratum E about 10 centimeters below the first cache. It is likely that these originally came from the same cache and that they were separated during the fire (Saar 2005). This was by far the largest cache found in all of the loci and features. A smaller cache was recovered from Locus 12 Feature 74. This consisted of WRACO 30 WCF cartridges, all unfired except for one. According to Saar (2005), the person may have returned to the cache to reload. When they did so, they may have dropped the final cartridge at the spot. This suggests that the caches were active the day of the fire and massacre. This evidence offers physical verification that strikers did indeed have caches of ammunition and arms in the tent colony. It supports the historical documentation that was previously based on assumptions and hearsay.

Locus	Feature	Type	Fired	Count
11	73	Cartridge	Unfired	65 (At least 15 exploded)
		Cartridge	Fired	1
		Bullet	Unfired	3
		Jacketed Slug	Fired	2

12	74	Cartridge	Unfired	12 (at least 5 exploded)
		Bullets	Unfired	2
		Bullet	Fired	1

**Table 19: Fired and unfired ammunition from buried features at Ludlow.**

The second goal was to determine the events of the day of the massacre, April 20, 1914. The data from the field was not sufficient to conduct a traditional battlefield analysis, however, project archaeologists were able to identify a few trends in the data. See *Table 20* for a list of ammunition found by loci. This table only lists the ammunition for which we knew the caliber or maker. Larger numbers of fired cartridges were found along the western edge of the colony in Loci 1 and 13. The majority of the ammunition found at Locus 1 was from a 12 gauge shotgun. They were all fired and the majority were a variation of Peters manufacture. They were also all from Strata A. The relative closeness of Strata A to the surface calls into question whether these cartridges come from the day of the conflict or later. In this location, recent activities in the area include hunting and ranching. It is unlikely that a hunter would fire over 20 rounds of ammunition from the same location since their prey would have most likely fled after the first shot. They would therefore have to follow them if they did not hit their mark. Additionally, Peters merged with Remington in 1934 (Steinhauer 2005). At that time the head stamps changed. None of the head stamps in this collection reflect the merged company, therefore, these all date prior to 1934.

These two lines of evidence strongly suggest that this collection of ammunition dates to the day of conflict. Therefore, it is likely that a person, or small group of people were all firing from the same spot, one of the tents located in Locus 1. This locus is located along the western edge of the colony on the border. Its position makes it a perfect location for defending the colony. The shells were all fired from a shotgun, which is not known for its accuracy at long-range. They do most harm at close proximity. Along the western edge of the colony was the walk-in well that historical accounts note as a hiding place for striking women and children. It is likely that Locus 1 may have been a cover to protect women and children as they fled to this or other hiding places. It may have also been a final effort to ward off militia men and protect women and children fleeing to the arroyo at the end of the day.

Locus	Feature	Make	Caliber	Type	Count
1		Peters	12	Cartridge (fired)	21
		Winchester	12	Cartridge	1
3		UMC	32	Cartridge (Fired)	1

4		Peters	32	Cartridge	1
6		Unrec	Unrec	Unrec	1
	70	WRA	32	Cartridge	2
		UMC Remmington	30/30	Cartridge (exploded)	1
7		Remmington	30/30	Cartridge	1
		Peters	30/30	Cartridge	1
		Unknown	22	Cartridge	1
		Revolver		Chamber and Bullets	1
9	71	WRA	30	Cartridge (fired)	1
11	73	UMC Remmington	30/30	Cartridge	13
		UMC Remmington	30/30	Cartridge (fired)	1
				Ball Bullet	1
				Copper Jacketed Slugs	2
			36	Bullet (unfired)	2
			38	Cartridge	1
12	74	UMC Remmington	30/30	Cartridge (unfired)	6
			22	Bullet	1
			38	Cartridge	1
13		Peters	30/30	Cartridges (fired)	5
				Cartridges (Exploded)	8
				Melted slugs	2
				Jacketed Slug	1
15			30/30	Cartridge (Exploded)	1
16			30/30	Cartridge (Exploded)	1

**Table 20: Known ammunition by loci at the Ludlow Tent Colony.**

### 5. *Organization and Order*

Historical descriptions of space in the colony created an ideological confrontation, in which each side used space as a way to increase their public support. The National Guard used popular ideas of immigrant groups to assert an interpretation of chaos in the

colony and the strike region, while the union asserted an ordered colony to promote workers' abilities to have a voice and a level of control outside of the companies' paternalism. Through a study of the documentary records, including oral histories, testimonies, reports, and photographs and of the material record, the project has been able to interpret not only the established order of the Ludlow tent colony, but the effect of ideology on the order.

The National Guard saw the colony as a symbol, but in opposition to that of the union's symbolism. In their view, the colony was a central threat to the social order. They perceived a lack of forethought and planning on the part of the strikers, and therefore the strikers as irrational and violent. The attack on the colony's disorder originates in descriptions of the colony's workability. They could see no order or central design; instead, they determined the layout of the tents to be completely random. Officers asserted that the inability of the union to establish order created an unsanitary environment. General Chase stated that it was only the National Guard's "insistence" that the colony be vaccinated, which prevented an outbreak of small pox in the colony (Chase Report 1914: 27). The main source for officers' opinions of the strikers' colony comes from their description of the inhabitants as savage immigrants. In the report on the Ludlow Massacre prepared by the National Guard for the Governor, officers rationalized their defense and violence against strikers by defining strikers as savages. Major Hamrock portrayed the colonists as "... the women and children were no more than dogs, or they would not be striking and living in tents..." (USCIR 1916: 6941). His statement played into a view of the strikers as acting on instinct rather than rational thought. The National Guard's view of violent and barbaric strikers was echoed in their description of events of April 20<sup>th</sup>, 1914. "In such a way does the savage blood-lust of this Southern European peasantry find expression. In this connection we find also that without exception where dying or wounded adversaries, whether soldiers or civilians, had fallen into the hands of these barbarians they were tortured or mutilated. It is shocking to think of our Colorado youth defending their state and exposed to practices of savagery unheard of save in the half-believed tales of the Sicilian Camorra." (Ludlow Report: 1914: 16-17). Such views of the strikers as savages and murderers created a hostile view of disorder and irrational practices centered within the colony.

For the UMWA, organization was not just necessary for the efficiency of daily tasks for the union and the inhabitants, such as getting strikers their pay and providing food and shelter. The regulation of space also promoted solidarity, community formation, and improving public perception of their cause. Solidarity was key to surviving and winning the strike. It required a merging of individual interests into a collective goal and action. This collective action meant internal order and support. The union saw space as a reflection of this solidarity.

There was an implied order within the colony as the union and colonists saw a need for order in the practice of daily activities. The tent was the basis for the organization of the colony. The striker and his family's lives centered on the tent. Daily actions for both the individual and the colony were initiated here. Families each had their own tent. In one case, the Snyders had two tents. One tent acted as a living quarters, while the second was used for a kitchen (USCIR 1916: 6351). In this way, the tent established order for the household. The tent through its basic facilities of a stove and



bedding provided a basic shelter. With the addition of a cellar, some families had increased space and security.

The congregation of tents allowed for the development of neighborhoods and an overall community in the colony. With approximately 150 tents (USCIR 1916:6812), a system of identification within the camp was required for organization. Mary Petrucci stated that such a tent ordering system existed in noting that she lived in tent number one, which was next to the “Death Pit” which had the number 58 (USCIR 1916: 8193). Tents were lined up side by side with streets running between them (USCIR 1916: 8192). From the statements provided by the union and the strikers, there does appear to have been a central plan for organization for the colony. However, there are no maps or descriptions detailing street names or the patterning of the tent numbering system. Through the archaeological analysis of space, the overall organizational structure of the colony can be recognized.

Photographs have provided project archaeologists an insight into the layout of the colony. The photographer of many of the colony’s images, an unnamed colonist, perhaps Louis Tikas or John Lawson, provided street names in his titles (*Figure 74*). In his photographs and the photographs of others, identifiable marks on the tents are recognizable and confirm the presence of an order. Most specifically are tent numbers painted upon the outside of tents (*Figure 75*). The photographic overlay of the 1998 season provided evidence for the location of tents in Locus 13. It also helped to establish the overall position of the colony. The photographs positioned by the photographic overlay conducted during the 2001 season provide not only the location of features, such as tents, cellars, gymnastic bars, but also the boundaries of the colony. Most important these photo overlays supply the names of streets such as Front Street, Main Street, North Main Street, and Second and Third Street. With identifiable streets, we can identify a part of the order of the colony. When photographs of tents with identifiable numbers and streets, we can link them with other photographs to develop a basic understanding of the layout of the colony. We can further trace how the photographer moved in space, and where the areas of heavy traffic occurred. In effect, our interpretations of these photographs establish a photographic landscape. There was a specific design to the colony. This layout met the needs for daily practices of sanitation, housing, and safety, but it also allowed the basis for community formation under a central ideology.



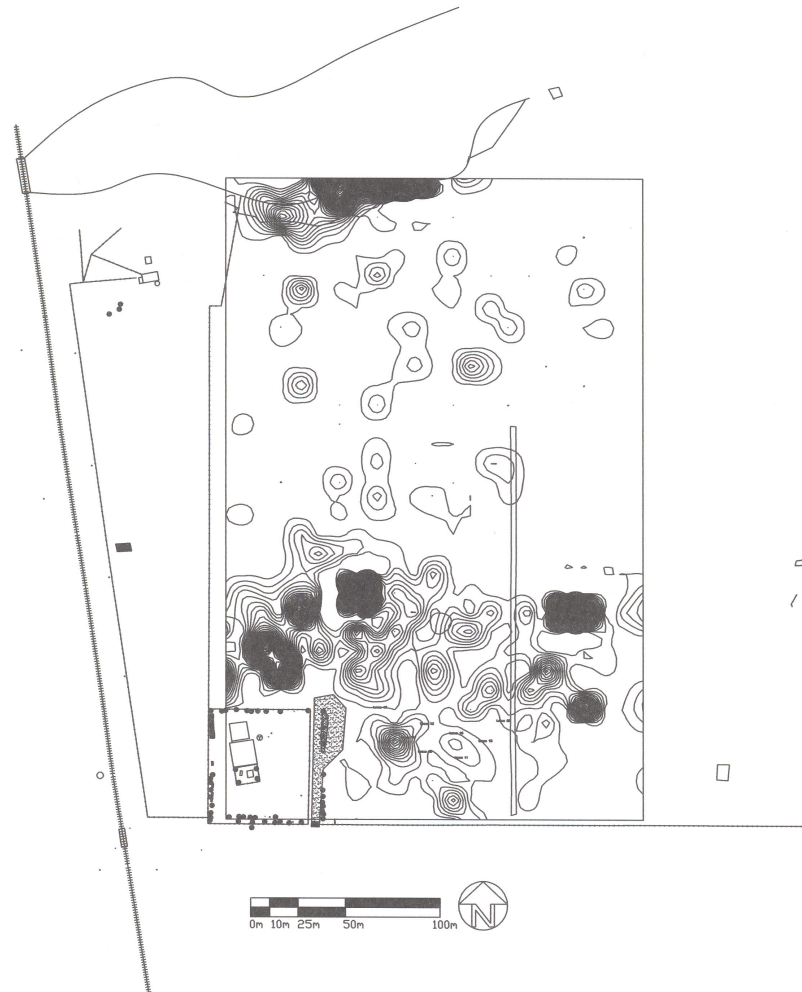
**Figure 74:** “Front Street” of Ludlow Tent Colony. Courtesy of Denver Public Library.



**Figure 75:** Inhabitants of Ludlow Tent Colony Standing in front of tent marked “No. 3.” Courtesy of Denver Public Library.

The layout of tents as identified through the project’s testing has shown there are alignments of major features, such as cellars and tent platforms. The artifact counts acquired from the dog leash surveys show the activity centers within the colony (*Figure*

76). The activities of daily life took place in association with the living spaces of the material landscape. The artifact concentrations suggest an alignment of activity off both the railroad and the county road. These alignments follow to some extent the 45-degree angle suggested by the photographic evidence. With confirmation of the photographic overlay through testing in Locus 13, we can be confident in the alignment of the colony and the interpretation of this alignment in directing outsiders, and the union's perception of an ordered space.



**Figure 76:** Results of Dog leash Survey showing concentrations of artifacts and probable activity areas.

The archaeology does confirm the presence of a centralized organization effort for the Ludlow tent colony. Historic records suggest such an order existed and hinted at the methods to achieve such an order using a tent numbering system running along well-defined streets within the colony. Although the material record does not specify the numbering system, it does show the positioning of features and artifact concentrations that help us realize the overall layout the union established. The union used the spatial layout to allow for governing of the colony. Streets and the numbering system allowed for quick identification of individual tents and neighborhoods. The tent colony's layout also allowed it to work as an effective picket line. By offsetting the alignment, the union and strikers were able to observe the movements of company guards, strikebreakers, and

the Colorado National Guard, while also using the colony to act as a symbol in the landscape to promote union ideals.

### **B. Consumption and Diet**

The analysis of consumption and diet at Ludlow and Berwind focuses on several aspects. First, the analysis focuses on identifying significant variation between differences in the artifact functional groups to identify gross patterning in both the pre and post strike contexts at Berwind and between Berwind and Ludlow. A series of  $\chi^2$  tests were used to determine whether the variation between the Loci was significant, and to identify the classes of artifacts that contributed most to the variation. Next, the analysis examines more closely those functional groups that have the greatest potential for showing culturally meaningful variation—functionally identifiable Bottle Glass and tablewares (Food-related) on the supra-household level. Within the Food-Related group the analysis also considers refined earthenware decorative techniques, the purpose here being to determine whether the ceramic assemblage was more standardized than that at Berwind thus possibly indicating union supply. In addition to these analyses, the analyst compared the faunal remains species between Berwind-K and Berwind-B to see if there was an improvement or change in diet. An analysis of the fauna at Ludlow focuses on of what the diet in the striker's camp would have consisted. On the household level, a specialized analysis of the ceramics from Feature 73, Locus 11 examines the consumption patterns for miners during the period surrounding the strike.

#### *1. Consumption: Pre- and Post-Strike Berwind: Areas K and B*

In comparing the artifacts between the pre and post strike areas at Berwind, the project found some interesting results. Significant patterns in the proportions of architectural material, food remains, canned goods and bottle glass between the two contexts suggest changing consumption patterns over time in the company camp of Berwind. These patterns provide information on the effects of the strike and the extent of company investment in the camp after the instatement of the Rockefeller Plan of 1915. The results are presented here as tables of  $\chi^2$  tests followed by our interpretations of these tests.

Table 21 shows the assemblages recovered from Berwind-K (pre-strike), Berwind-B (post-strike) and also Ludlow itself, which will be discussed later. It should be noted that the number of cans in the table is an estimate arrived at by dividing the total weight of can fragments by 110, the mean weight of the complete cans in grams. Table 21 shows that there are significant associations between different functional groups and Areas K and B. The table is partitioned to determine which functional groups contributed to the total  $\chi^2$  score. Those groups are marked with an asterisk in the table. If the  $\chi^2$  value is significant, and the observed frequency for a Locus is greater than the expected frequency then there is a positive association between that Area and the Artifact Group. In a word, a positive association indicates that there are more artifacts in that group than would be expected if the distribution was random. If the observed frequency is less than the expected there the association is negative; there are fewer artifacts of that group than would be expected if the distribution was random.

	Berwind-K		Berwind-B		Ludlow		Totals
Architectural	2284	9%	921	10%	124	6%	3205
Arms	19	0%	14	0%	4	0%	33
Bottles	3837	15%	2601	30%	669	30%	6438
Cans (est. weight/110g)	92	0%	8	0%	317	14%	100
Fence	6	0%	11	0%	117	5%	17
Food	1391	6%	1435	16%	256	11%	2826
Food debris	3080	12%	623	7%	127	6%	3703
Furnishings	315	1%	81	1%	49	2%	396
Industrial/Tools	67	0%	12	0%	1	0%	79
Personal	2159	9%	200	2%	52	2%	2359
Toys	53	0%	23	0%	2	0%	76
Writing/Reading	32	0%	11	0%	341	15%	43
Unidentified glass	1973	8%	1694	19%	67	3%	3667
Unidentified iron	9296	37%	1040	12%	19	1%	10336
Unidentified metal	34	0%	41	1%	6	0%	75
Unidentified other	19	0%	51	1%	0	0%	70
Unidentified synthetic	114	1%	21	0%	93	4%	135
Unidentified wood	121	1%	4	0%	0	0%	125
	24892		8791		2244		33683

**Table 21: Functional Groups at Berwind-K, Berwind-B, and Ludlow**

Locus K appears to be positively associated with Cans and Unidentifiable Iron (most probably composed primarily of tin can fragments), Food Debris, Personal Artifacts and Unidentified Wood. The association with Food Debris, Personal Artifacts, and Unidentified Wood may be due to differential preservation. The Food Debris was almost all bone and most of the Personal Artifacts were leather shoe parts. The deeper privy and midden deposits at Locus K would have led to better preservation of organic material than the deposits at Locus B.

Locus B, the post-strike site, was associated with Architectural material, Bottle and Unidentifiable Glass, Fencing (wire) and Food-Related artifacts. In addition, Locus B was positively associated with Unidentifiable Metal and Other, the associations of which are not really interpretable.

The difference in Architectural material is due to a slight increase from Locus K to Locus B, from 9% to 10% of the total assemblages. Within the Architectural group, there were no significant differences in the proportions of nails, window glass, or other hardware or construction material. The association of Cans and Unidentified Iron with Locus K and Food-Related Artifacts and Glass (both Bottle and Unidentified) with Locus B appear to be significant. Assuming that the bulk of the Unidentified Iron is can fragments, there appears to be a far greater reliance on canned foods and beverages (such as evaporated milk) in the 1890-1910 period. With a greater use of bottled goods and vessels such as jars. In the post-strike period there is greater use of bottled goods and vessels. In considering the sherds from bottles with identifiable contents from Berwind-K (n=780) and Berwind-B (n=397) (*Table 23*) there were two overall trends:

- The first was an increase in the proportion of beer bottle glass, condiment bottle glass and canning jar glass from Berwind-k to Berwind-B, and
- the second was a decrease in liquor, wine, and pharmaceutical bottle glass.

Functional Group	Berwind-K			Berwind-B		
	Observed	Expected	$\chi^2$ value	Observed	Expected	$\chi^2$ value
Architectural*	2284	2368.5	3.0	921	836.5	8.5
Arms	19	24.4	1.2	14	8.6	3.4
Bottles*	3837	4757.7	178.2	2601	1680.3	504.5
Cans (est. weight/110g)*	92	73.9	4.4	8	26.1	12.6
Fence*	6	12.6	3.4	11	4.4	9.7
Food-related*	1391	2088.4	232.9	1435	737.6	659.5
Food debris*	3080	2736.5	43.1	623	966.5	122.1
Furnishings	315	292.6	1.7	81	103.4	4.8
Industrial/Tools	67	58.4	1.3	12	20.6	3.6
Personal*	2159	1743.3	99.1	200	615.7	280.6
Toys	53	56.2	0.2	23	19.8	0.5
Writing/Reading	32	31.8	0.0	11	11.2	0.0
Unidentified glass*	1973	2709.9	200.4	1694	957.1	567.5
Unidentified iron*	9296	7638.4	359.7	1040	2697.6	1018.6
Unidentified metal*	34	55.4	8.3	41	19.6	23.5
Unidentified other*	19	51.7	20.7	51	18.3	58.6
Unidentified synthetic	114	99.8	2.0	21	35.2	5.8
Unidentified wood*	121	92.4	8.9	4	32.6	25.1

\*Significant association at  $\alpha=0.001$

$\chi^2$  Total: 4477.4 (significant at  $\alpha<0.001$ )

**Table 22: Functional groups at Berwind-K and Berwind-B,  $\chi^2$  values**

There are a number of possible interpretations of this pattern. The increase in condiment bottles and jars may reflect a broader range of supplies available, either at the company or through access to markets outside the company store. It may also be due to an increased reliance on home canning and food preservation over this period. The decrease of wine and liquor bottles may result from prohibition, as Las Animas and Huerfano Counties became dry after the 1913 strike. The increase in the amount of beer bottle glass would appear to contradict this, but early prohibition efforts tended to focus on hard liquor. The increase in beer could be because hard liquor was harder to obtain, due to prohibition. Other factors that need to be considered are household variation or simply a wider availability of bottled beer over home-supplied containers being carried to the saloon for beer. Another significant trend is the decline in pharmaceutical consumption. Table 23. Again, this may be due simply to household variation, or more likely due to increasing legislation and control of patent medicines after 1906.

Count	Berwind-K			Berwind-B		
	Observed (Percent)	Expected	$\chi^2$	Observed (Percent)	Expected	$\chi^2$
Beer*	92 (12%)	187.5	48.7	191 (48%)	95.5	95.6
Beer/Soda	15 (2%)	14.6	0.0	7 (2%)	7.4	0.0
Condiment	24 (3%)	17.2	2.7	2 (1%)	8.8	5.2
Jars*	22 (3%)	46.4	12.8	48 (12%)	23.6	25.2
Liquor*	97 (12%)	68.3	12.1	6 (2%)	34.7	23.8
Other	-- --	2.7	2.7	4 (1%)	1.3	5.2
Pharmaceutical*	450 (58%)	382.4	12.0	127 (32%)	194.6	23.5
Wine	80 (10%)	61.0	5.9	12 (3%)	31.0	11.7
	780			397		

\*Significant association at  $\alpha=0.001$

$\chi^2$  total: 287.1 (significant at  $\alpha=0.0001$ )

**Table 23: Identifiable bottle contents at Berwind-K and Berwind-B,  $\chi^2$  values**

While faunal remains as a group (Food Debris) declined from Berwind-K to Berwind-B (*Table 24*), probably due to differential preservation, the proportions of different species within the faunal group may still reveal important information, assuming that all the bone decayed and disappeared from the archaeological record at the same rate. Of the faunal remains at Berwind-K, 93% (n=2,884) were identifiable to some degree, while at Berwind-B 98% (n=612) were identifiable.

The main differences are:

- a decrease in the proportion of Cow/Large Mammal bones from 15% at Berwind-K to 9% at Berwind-B;
- a decrease in the bones that could only be identified as from artiodactylic species from 2% to 0%;
- an increase in the proportion of sheep from 0% to 1%.

However it is important to note that the counts for many of the species are quite small. As a rule of thumb,  $\chi^2$  tests where 20% or more of the cells have counts of 5 or less should be considered suspect, which is the case here.

	Berwind-K			Berwind-B		
	Observed (Percent)	Expected	$\chi^2$ Value	Observed (Percent)	Expected	$\chi^2$ Value
Artiodactyl*	64 (2%)	54.5	1.7	2 (0%)	11.6	7.9
Bird	95 (3%)	93.2	0.0	18 (3%)	19.8	0.2
Cow/Large Mammal*	433 (15%)	402.6	2.3	55 (9%)	85.4	10.8
Fish	7 (0%)	5.8	0.3	0	1.3	1.3
Goat	16 (1%)	18.1	0.3	6 (1%)	3.9	1.2
Medium Mammal	2241 (78%)	2277.7	0.6	520 (85%)	483.3	2.8
Pig	10 (0%)	11.5	0.2	4 (1%)	2.5	1.0
Rabbit/Small Mammal	11 (0%)	9.9	0.1	1 (0%)	2.1	.6
Sheep*	7 (0%)	10.7	1.3	6 (1%)	2.3	6.1
	2884			612		

\*Significant association at  $\alpha=0.0001$

$\chi^2$  total: 38.5 (significant at  $\alpha=0.0001$ )

**Table 24: Identifiable bone at Berwind-K and Berwind-B,  $\chi^2$  values**

The Food-Related artifacts (those artifacts, other than bottles and jars, related to food, preparation, serving, and consumption) were analyzed on the basis of material type (ware) and by refined earthenware decorative type. The purpose of the first analysis was to identify functional variation while the comparison of decorative types is aimed primarily providing context for determining standardization in the Ludlow assemblage as a possible indicator of union support. The analysis of decorative types (*Table 25*) will be discussed in more detail in the section on Ludlow below, but there was a change between the Berwind sites from decorated to plain ceramics, which may reflect broader national changes in taste.

The only significant difference in the Food-Related wares was in the percentages of stoneware sherds, an increase from 4% at Berwind-K to 7% at Berwind-B (*Table 25*). Stonewares tend to be kitchenwares, used more for food preparation and storage than for food serving. This may be part of the same trend seen with the cans and storage jars, with a shift away from store-bought canned foods towards slightly greater self-sufficiency.

The increase in fencing material from 0% to 5% fits with accounts of shifts in gardening discussed previously. After the Rockefeller plan went into effect in 1915, strides were made to fence in yards in order to create household, or kitchen gardens. These gardens provided fresh fruits and vegetables for families in the canyon. The increase in bottle glass would correspond with these new practices as these fruits and vegetables would then be canned (in canning jars) to preserve them for the winter. The decrease in mass produced canned goods in metal cans would have indicated that these gardens provided enough fruits and vegetables for the camp that they were able to purchase fewer mass produced canned goods after 1915.

In conclusion, there are significant differences between the assemblages from the pre- and post-strike loci of Berwind. To summarize, these differences are

- increases in the proportions of architectural material, food-related vessels, and bottles, and



- a decrease in the proportion of tin cans.
- and an increase in the amount of fencing wire

Ware	Berwind-K			Berwind-B		
	Observed (Percent)	Expected	$\chi^2$ Value	Observed (Percent)	Expected	$\chi^2$ Value
Coarse Earthenware	7 (0%)	5.3	0.5	1 (0%)	2.7	1.1
Stoneware*	83 (4%)	114.2	8.5	89 (7%)	57.8	16.8
Refined Earthenware	2078 (87%)	2031.6	1.1	983 (81%)	1029.4	2.1
Porcelain	104 (4%)	117.5	1.55	73 (6%)	59.5	3.1
Glass	108 (5%)	110.2	0.0	58 (5%)	55.8	0.1
Utensils/Tinware	6 (0%)	7.3	0.2	5 (0%)	3.7	0.5
	2386			1209		

\*Significant association at  $\alpha=0.0001$

$\chi^2$  total: 35.5 (significant at  $\alpha=0.0001$ )

**Table 25: Food-Related Wares at Berwind-K and Berwind-B,  $\chi^2$  values**

The increase in architectural material was consistent across all classes of this group. Window glass, nails, and construction materials all increased proportionally. This may indicate a greater investment in architecture after the strike.

Within the Food-related artifacts (i.e., vessels and utensils related to food preparation storage and serving), the only difference was an increase in the proportion of stoneware vessels. These vessels were used for food preparation and especially for storage, being sturdy, waterproof, and having non-reactive glazes. Mason jars also increased, while tin cans declined. These three trends may be related, possibly suggesting slightly greater economic self-sufficiency after the strike, with an increase in home canning and food preparation and a decreased reliance on store-bought canned food. There was also a shift from decorated to undecorated refined earthenware vessels, possibly part of a broader national shift in taste.

The overall amount of bottle glass increased from the pre- to post-strike site. Within the bottle glass, the main changes were:

- a decrease in the amount of liquor bottle glass;
- an increase in beer bottle glass;
- and a decrease in pharmaceutical bottle glass.

The increase in beer and decrease in liquor may be related. One of the effects of the strike was a shift in local political discourse to a focus on prohibition (McGovern and Guttridge 1972). The reasons for this shift are complex. On one hand it may have had something to do with a perception of the violence being caused by strong liquor, but also the coal companies themselves supported prohibition. The companies may have sought to recast their tarnished image after the strike and also to redirect attention to some less explosive than coal camps living conditions. Whatever the reasons, Las Animas County went dry in 1915. The decrease in liquor bottles from Locus K to Locus B maybe a result of this prohibition. Early prohibition efforts tended to emphasize hard liquor as the greatest danger. Even with prohibition it may still have been possible to the miners to

obtain beer, and if so, beer consumption may have increased if liquor was no longer as available. The decrease in pharmaceutical bottles is probably due to slowly increasing regulation of patent medicines after 1906.

Just considering the features, the two loci the post-strike locus has fairly substantial concrete house foundations, while there is nothing visible on the surface in the pre-strike site, suggesting more ephemeral construction. In fact the post-strike improvements was one of the problems in making comparisons between Loci K and B. While the privy in Locus K was a trove of information, being used as a trash dump after its use as a privy was over, the privies in Locus B were concrete-lined and regularly cleaned—better for the people living there but of limited archaeological value.

## 2. Consumption: Comparisons between Berwind and Ludlow

This section compares the assemblage at Ludlow with those from Berwind. One complicating factor is that Berwind itself is not a single homogeneous site, but changed through time. In comparing Ludlow to Berwind, one must also be aware of how Berwind changed, for example to ensure that what we see at Ludlow is not simply a continuation of processes underway at Berwind. So although it is repetitive in parts the statistics for the Berwind loci are included along with the ones from Ludlow. We did not include the deep cellar features in our analyses here because we had no comparable material in Berwind with which to compare. This analysis focuses on the tent features and midden remains from Ludlow.

The following analysis concentrates on gross changes in overall functional groups, with more detailed discussion of changes within certain functional groups—Architecture, Food-Related and Bottle Glass. The results of the cross-tabulation of functional groups by each context are presented schematically in *Table 26* as positive and negative associations. The numbers, percents, and tests results are given in *Table 27*.

Group	Berwind-K	Berwind-B	Ludlow
Architectural		+	-
Arms			
Bottles	-	+	+
Cans	-	-	+
Fence	-	-	+
Food debris	+	-	-
Food-related	-	+	+
Furnishings			+
Unidentified iron	+	-	-
Personal	+	-	-
Toys			
Writing/ Reading			
Unidentified glass	-	+	+
Unidentified metal	-	+	+
Unidentified other	-	+	
Unidentified synthetic	+	-	-

Industrial/ Tools			
Unidentified wood	+	-	+

**Table 26: Positive and negative correlations of artifact groups at Berwind-B and K, and Ludlow**

Compared to the Berwind sites, Ludlow was distinguished by having less Architectural material than either of the Berwind sites, and, possibly related to this, much more Fencing (wire). Formal Architectural artifacts were 6% of the Ludlow material, as opposed 9% and 11% at Berwind-K and Berwind-B, while wire was 5% at Ludlow and less than 0.5% at either of the Berwind sites. The amount of wire at Ludlow may be an architectural feature, being used for securing tent frames and other uses. There were a number of artifacts such as hooks improvised from wire. The negative association with more formal architectural artifacts is not surprising, given that Ludlow was a tent colony. What is surprising is that the difference is not even greater.

Group	Berwind-K			Berwind-B			Ludlow		
	Observed	Expected	$\chi^2$ Value	Observed	Expected	$\chi^2$ Value	Observed	Expected	$\chi^2$ Value
	(Percent)			(Percent)			(Percent)		
Architectural*	2,284 (9%)	2306.5	0.2	921 (11%)	814.6	13.9	124 (6%)	207.9	33.9
Arms	19 (0%)	25.6	1.7	14 (0%)	9.1	2.7	4 (0%)	2.3	1.2
Bottles*	3,837 (15%)	4924.1	240.0	2,601 (30%)	1739.0	427.3	669 (30%)	443.9	114.1
Cans*	92 (0%)	288.9	134.2	8 (0%)	102.0	86.7	317 (14%)	26.0	3250.2
Fence*	6 (0%)	92.8	81.2	11 (0%)	32.8	14.5	117 (5%)	8.4	1409.9
Food*	1,391 (6%)	2135.4	259.5	1,435 (16%)	754.1	614.7	256 (11%)	192.5	20.9
Food debris*	3080 (12%)	2653.6	68.5	623 (7%)	937.2	105.3	127 (6%)	239.2	52.6
Furnishings*	315 (1%)	308.3	0.1	81 (1%)	108.9	7.1	49 (2%)	27.8	16.2
Industrial/ Tools	67 (0%)	55.4	2.4	12 (0%)	19.6	2.9	1 (0%)	5.0	3.2
Personal*	2,159 (9%)	1670.5	142.9	200 (2%)	589.9	257.8	52 (2%)	150.6	64.5
Toys	53 (0%)	54.0	0.0	23 (0%)	19.1	0.8	2 (0%)	4.9	1.7
Unidentified glass*	1,973 (8%)	2776.9	232.7	1,694 (19%)	980.7	518.8	341 (15%)	250.3	32.8
Unidentified iron*	9,296 (37%)	7207.7	605.0	1,040 (12%)	2545.5	890.4	67 (3%)	649.8	522.7
Unidentified metal*	34 (0%)	65.1	14.9	41 (1%)	23.0	14.1	19 (1%)	5.9	29.4
Unidentified other	19 (0%)	52.7	21.5	51 (1%)	18.6	56.5	6 (0%)	4.7	0.3

Unidentified synthetic*	114 (1%)	93.5	4.5	21 (0%)	33.0	4.4	0 (0%)	8.4	8.4
Unidentified wood*	121 (1%)	151.0	6.0	4 (0%)	53.3	45.6	93 (4%)	13.6	462.8
Writing/ Reading	32 (0%)	29.8	0.2	11 (0%)	10.5	0.0	0 (0%)	2.7	2.7
	24,892			8,791			2,244		

\*Significant association at  $\chi^2=0.0001$

$\chi^2$  total: 10906.8 (significant at  $\alpha=0.0001$ )

**Table 27: Functional groups at Berwind-K, Berwind-B, and Ludlow,  $\chi^2$  values**

Within the Architectural Group (*Table 28*), there was little difference between Ludlow and the Berwind sites. The main contribution to the  $\chi^2$  score was that Ludlow had more construction material than would be expected (15% as opposed to 3% at the Berwind sites). Almost all of this “construction material” from Ludlow were fragments of 0.3” thick glass “tile” (n=11) and brick fragments (n=23) from Feature 70. Unsurprisingly Ludlow also had less window glass than the Berwind sites (22% compared to 36%).

Architectural Class	Berwind-K			Berwind-B			Ludlow		
	Observed (Percent)	Expected	$\chi^2$ Value	Observed (Percent)	Expected	$\chi^2$ Value	Observed (Percent)	Expected	$\chi^2$ Value
Construction material*	67 (3%)	88.2	5.1	30 (3%)	35.6	0.9	36 (15%)	9.2	78.2
Hardware	124 (5%)	142.0	2.3	78 (8%)	57.2	7.5	12 (5%)	14.8	0.5
Nails	1270 (56%)	1251.1	0.3	479 (52%)	504.5	1.3	137 (58%)	130.4	0.3
Window glass*	823 (36%)	802.7	0.5	334 (36%)	323.7	0.3	53 (22%)	83.6	11.2
	2284			921			238		

\*Significant association at  $\chi^2=0.001$

$\chi^2$  total: 108.5 (significant at  $\alpha=0.001$ )

**Table 28: Architectural material at Berwind-K, Berwind-B, and Ludlow,  $\chi^2$  values**

Related to the Architectural Group, Ludlow also had slightly more Furnishing related artifacts than the Berwind sites (2% compared to 1%). These were mainly lamp glass, bedsprings, and stove parts and probably the result of the destruction of the colony rather than any absolute increase in furnishings in the colony.

There were significant differences within those groups related to food storage, preparation, serving, and consumption (Food-Related, Bottle Glass, Cans, and Food Debris). Ludlow was positively associated with Bottle and Unidentified Glass, Cans, and Food-Related artifacts and negatively associated with Food Debris (i.e., bone).

The preponderance of cans at Ludlow and the paucity of faunal remains/Food Debris (if not an artifact of preservation) indicate a far greater reliance on preserved and packaged food. Conversely, this may suggest that in the coal camps that there was a certain degree of self-sufficiency or economizing through means such as gardening and home canning. The amount of Unidentified Iron from Berwind-B may mean that this site had more tin cans than were actually identified, so the association of Ludlow with cans in relation to the two Berwind sites may not be as strong as it appears.

Within the Food-Related group the main contribution to the  $\chi^2$  score Coarse Earthenware and Stoneware vessels sherds (these were combined as a total of only eight

coarse earthenware sherds were found at Ludlow). Most of this contribution was due to variation between the two Berwind sites, with Ludlow's observed frequency being very close to the expected one. Ludlow was negatively associated with glass tablewares (i.e., had less than expected).

This analysis compares the decorative techniques of the refined earthenware sherds from Ludlow and Berwind. The expectation was that if the ceramic assemblage at Ludlow was union-supplied it would be more standardized than those from the Berwind sites. To calculate the degree of standardization we identified the five main decorative techniques (Undecorated, Molded, Hand-painted, Gilt, and Decal/Transfer Print) and counted the occurrence of each decorative technique (*Table 29*). If a sherd had more than one decorative technique, it was counted for each technique.

Ware	Berwind-K			Berwind-B			Ludlow		
	Observed (Percent)	Expected	$\chi^2$ Value	Observed (Percent)	Expected	$\chi^2$ Value	Observed (Percent)	Expected	$\chi^2$ Value
Glass	108 (5%)	102.3	0.3	58 (5%)	51.9	0.7	4 (1%)	15.8	8.8
Porcelain	104 (4%)	125.2	3.6	73 (6%)	63.4	1.4	31 (8%)	19.3	7.0
Refined Earthenware	2,078 (87%)	2031.6	1.1	983 (81%)	1029.4	2.1	314 (85%)	313.9	0.0
Stoneware/ Coarse Earthenware*	90 (4%)	120.4	7.7	90 (7%)	61.0	13.8	20 (5%)	18.6	0.1
Tinware/ Utensils	8 (0%)	8.4	0.0	6 (1%)	4.3	0.7	0 (0%)	1.3	1.3
	2,388			1,210			369		

\*Significant association at  $\alpha=0.001$

$\chi^2$  total: 48.7 (significant at  $\alpha=0.001$ )

**Table 29: Food-Related Wares at Berwind-K, Berwind-B, and Ludlow,  $\chi^2$  values**

	Berwind-K			Berwind-B			Ludlow		
	Observed (Percent)	Expected	$\chi^2$ Value	Observed (Percent)	Expected	$\chi^2$ Value	Observed (Percent)	Expected	$\chi^2$ Value
Decal/ Transfer print*	103 (10%)	26.9	215.7	17 (2%)	25.3	2.7	11 (0%)	78.9	58.4
Gilt*	8 (1%)	23.8	10.5	1 (0%)	22.4	20.4	107 (3%)	69.8	19.8
Hand painted*	45 (4%)	37.5	1.5	11 (1%)	35.3	16.7	127 (4%)	110.2	2.6
Molded*	28 (3%)	40.4	3.8	11 (1%)	38.0	19.2	158 (5%)	118.6	13.1
Undecorated	862 (82%)	917.4	3.3	943 (96%)	862.1	7.6	2667 (87%)	2692.5	0.2
	1046			983			3070		

\*Significant association at  $\alpha=0.001$

$\chi^2$  total: 395.4 (significant at  $\alpha=0.001$ )

**Table 30: Refined earthenware decorative techniques.**

To assess "standardization" of the refined earthenware assemblage, the author calculated a diversity statistic, the Brillouin index, for each site sample (Rindos 1989). Diversity statistics measure a combination of assemblage *richness* (the number of classes) and assemblage *evenness* (the proportion of individuals in each class). Maximum diversity or *heterogeneity* is the same proportion of individuals in each class. Minimum diversity (*homogeneity*) is achieved when all individuals are in one class. These statistics tell us nothing about the content of the distribution, but are merely an

approximate measure of the form. There are a number of diversity statistics. The most common in archaeology appears to be the Shannon-Weaver Index (Bobrowsky and Ball, 1989; Conkey, 1989), although this statistic is based on the assumption of an infinitely large population (Rindos 1989). As this is a sample and we are interested only in the differences within our dataset we used the Brillouin index using a computer program, DIVM.EXE (Kintigh 1991) to calculate it. The resulting indices were

Berwind-K: 0.2811

Berwind-B: 0.0911

Ludlow: 0.2345

DIVM actually calculates a number of diversity measures, and the results were consistent in each case. Berwind-B was the most homogeneous assemblage, then Ludlow, with Berwind-K being the least homogeneous (i.e., most diverse).

This result contradicts the expectation of greater homogeneity for the Ludlow assemblage. This may be due to several factors. The ceramics at Ludlow were not union supplied, but brought down from the camps. It may also be a problem with the assumptions. The union may have supplied decorated ceramics, although these do tend to be more expensive. A better consideration of diversity would probably involve actually quantifying the designs rather than simple decorative techniques.

A  $\chi^2$  was calculated to analyze the actual structure of the assemblage (*Table 30*). There were significant associations between decorative technique and the different sites. Berwind-K was strongly associated with decal and transfer-printed sherds, and negatively associated with gilt decoration. Berwind-B was positively associated with undecorated refined earthenwares and had fewer decorated sherds than would be expected, accounting for the homogeneity of the assemblage. Ludlow was positively associated with sherds that had gilt and/or molded decoration, and negatively associated with decal/transfer printed sherds. These associations suggest several possibilities. There may be a secular change in ceramic decoration through time, from decorated to undecorated and the change from Berwind-K to Ludlow to Berwind-B may be in part of reflection of this. Based on the 1998 findings many of the decorated refined earthenwares from Ludlow consisted of a poor formed beaded molding with gilding or decal (CCWAP 2000:48-49) decoration, which may suggest a common source of supply.

The differences between the identifiable bottle contents from the Berwind sites have been discussed earlier. The Ludlow assemblage stands out from both Berwind sites in a number of ways. The main differences are that Ludlow has a strong positive association with condiment bottles (37% compared to 3% from Berwind-K and 12% from Berwind-B) and liquor bottles (23% compared to 12% and 2%). Conversely Ludlow is negatively associated with beer, wine, and pharmaceutical bottles. The increase in condiment bottles may, along with the tin cans, be part of a reliance on supplied items. The increase in liquor bottles in tandem with the decline in wine and beer is harder to explain, but nonetheless significant. Beer bottle glass was 12% of the identifiable Berwind-K glass and 48% of the Berwind-B glass, whereas at Ludlow it was only 1%. No wine bottle glass was recovered from the disposal contexts at Ludlow (although it was recovered from domestic contexts). This does not fit in with a general change in alcohol consumption as Ludlow bucks the trend from Berwind-K to Berwind-B. At Berwind beer and wine consumption increase while liquor decreases. At Ludlow the opposite is the case. *Table 31*.

	Berwind-K			Berwind-B			Ludlow		
	Observed (Percent)	Expected	$\chi^2$ Value	Observed (Percent)	Expected	$\chi^2$ Value	Observed (Percent)	Expected	$\chi^2$ Value
Beer	92 (12%)	166.4	33.3	191 (48%)	84.6	133.5	2 (1%)	33.9	30.0
Beer/Soda	15 (2%)	16.4	0.1	7 (2%)	8.3	0.2	6 (4%)	3.3	2.1
Condiment	24 (3%)	49.6	13.2	2 (1%)	25.3	21.4	59 (37%)	10.1	236.2
Jars	22 (3%)	50.2	15.9	48 (12%)	25.6	19.7	16 (10%)	10.2	3.3
Liquor	97 (12%)	81.2	3.1	6 (2%)	41.3	30.2	36 (23%)	16.5	22.9
Pharmaceutical	450 (58%)	357.9	23.7	127 (32%)	182.2	16.7	36 (23%)	73.0	18.7
Wine	80 (10%)	53.7	12.9	12 (3%)	27.3	8.6	0 (0%)	11.0	11.0
Other	0 (0%)	4.7	4.7	4 (1%)	2.4	1.1	4 (3%)	1.0	9.8
	780			397			159		

$\chi^2$  total: 672.1 (significant at  $\alpha=0.001$ )

**Table 31: Bottle contents from Berwind-K, Berwind-B, and Ludlow**

Exactly what this means is difficult to say. Hard alcohol consumption, at least as measured by bottle glass, appears to have increased substantially during the strike, while “soft” alcohol consumption declined. There are a number of possible explanations. This trend may be a result of the tension as well as the boredom of the strike—drinking more and harder. It may also be economic efficiency, assuming alcohol content is the driving motivation—liquor has more alcohol for the cost, both financial and transport. It also stores better. The reliance on liquor may be a result of a belief in its medicinal properties, especially in cold weather or a reliance on unhealthy drinking water. Another possibility is the different nature of the Ludlow and Berwind disposal contexts. The Ludlow features are generalized community-wide middens. At Berwind the middens can be expected to be more specialized—residential middens, saloon middens, and store dumps. In Berwind most liquor consumption would have taken place in saloons rather than in residences, and the refuse would end up in a salon deposit, while in Ludlow the results of liquor consumption would end up in the same dump as everything else. These possibilities are not mutually exclusive.

In conclusion, the artifact patterning between the two Berwind sites and Ludlow sheds light on consumption patterns, the conditions in the colony, and on some of the ways the mining families dealt with these conditions. The most significant differences were in those artifacts related to food and drink. The families at Ludlow were thrown back on mass-produced preserved food as shown by the sheer number of cans and preserve and condiment bottles recovered at Ludlow. Comparatively little in the way of faunal remains was recovered although the preservation conditions at Ludlow are quite good. Liquor consumption at Ludlow appears to have increased dramatically (12% liquor bottle glass at Berwind-K, 2% at Berwind-B, and 23% at Ludlow). This may be due to the fact that the Ludlow deposits are community dumps, whereas those at Berwind were from domestic contexts. A lot of the liquor consumption at Berwind may have taken place in saloons and would not be reflected in the dumps. But it also not unreasonable that as the strike dragged on, liquor consumption increased in the colony as

the strikers combated boredom and tension. There was also far less beer and wine bottle glass at Ludlow, something that the differences in midden type would not explain. A final notable trend was the decline in patent medicine use at Ludlow, possibly as the UMWA was supplying a doctor for the strikers.

### *3. Faunal Analysis of Ludlow*

The Colorado Coalfield War Archaeology Project has sought to identify the strategies used by colonists to survive the duration of the strike while living in tents through data collected during fieldwork at the Ludlow Tent Colony and documentary research. The results presented above suggest that there was a greater reliance on packaged foods in Ludlow during the strike, but the question regarding access to meat during the strike remains. We question whether strikers had access to butchered meats or and whether they were supplied with meat by the Union or through local support. In 2003, the project contracted Andrea Zlotucha Kozub from SUNY-Binghamton to analyze the faunal material from the Ludlow Tent Colony. These results provide insight into the subsistence strategies of the strikers at Ludlow.

In any discussion of the archaeological data collected at Ludlow, the specific context from which the material came must be considered. Such is true for the faunal material discussed here. Excavations at Ludlow fall into two general categories: shallow surface excavations and deep subterranean excavations. The material culture collected from these efforts is very different in both their condition and their interpretive context.

Artifacts excavated from the midden (Locus 7), for example, are poorly preserved due to their exposure to physical weathering. This condition is particularly relevant for fragile faunal material. The majority of unidentifiable bone fragments come from excavations in this area. Further, the midden was used as a trash depository for the entire Colony. Thus, material culture excavated from Locus 7 cannot be associated with any one household, and instead, represents the Colony as a whole.

Some of the shallow excavations of tent pads within the tent colony can, arguably, be associated with household units. However, like the faunal material in the midden, these artifacts have been exposed to physical weathering. In addition, material from these shallow excavations within the colony has suffered from repeated trampling by livestock during the years that the land has been leased for grazing. The faunal material has been especially susceptible to these elements, resulting in few identifiable specimens.

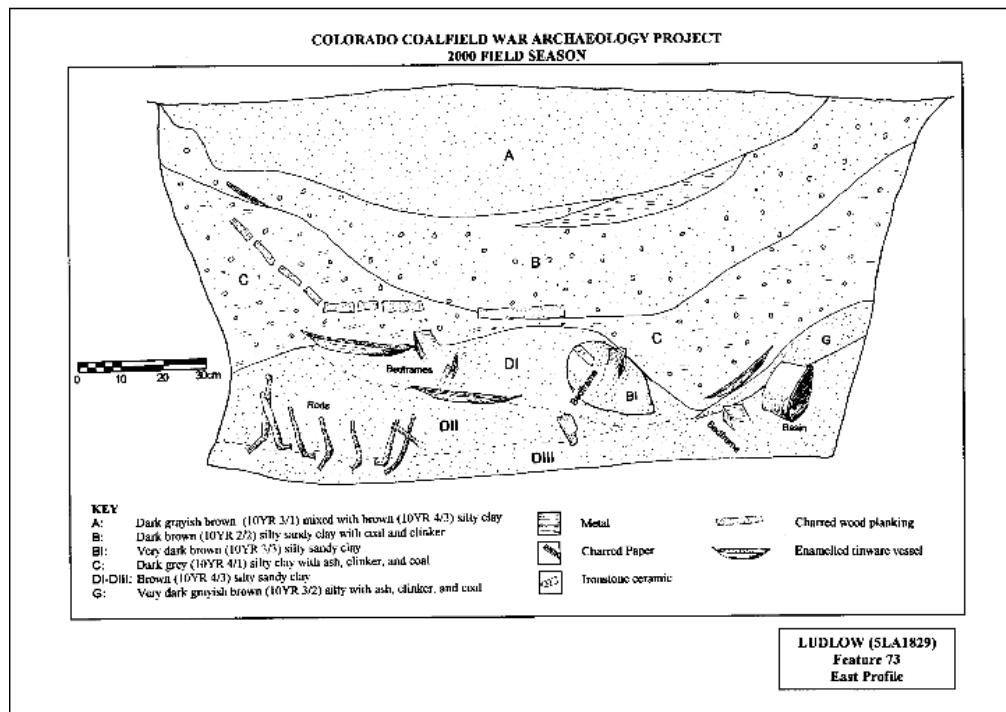
In contrast, faunal material removed from the subterranean features tends to be in better condition, and thus more identifiable. With the exception of Feature 70 (a possible privy), the subterranean features can be associated with single household units (Feature 73) or “neighborhoods” (Feature 74) within the tent colony. A total of 1,987 bone fragments were removed during excavations at the tent colony. Only 389 could be identified according to their function and/or species, and the majority of these came from Features 70, 73, and 74.

#### ***Feature 73***

The artifacts from Feature 73 were closely examined because of the feature’s depositional integrity. Feature 73 is located in the area designated as Locus 11, and is a subterranean feature 1.5 meters north/south by 3.5 meters east/west and one meter deep. The cellar seems to have a clear sequence of deposition, including a layer of items stored in the



cellar delineated by charred wooden floorboards (*Figure 77*). The cellar contained stored artifacts in its lowest strata, collapsed tent remains in the middle strata, including charred floorboards, and a combination of artifacts from the overlying tent and surrounding tents in the strata closest to the ground surface. Given the stratigraphic sequences of the soil and of the *in situ* artifacts in this cellar, it arguably contains the cultural material of one household, although the upper strata may contain some material from other tents. Therefore, this analysis conducted at the household level is not necessarily indicative of the entire site, but gives us a detailed look at a collection of individuals, and therefore, provides a baseline for further analysis.



**Figure 77: Profile of Feature 73**

Over 25 percent of the faunal material was excavated from Feature 73. This feature is thought to contain material culture that is representative of one household in its lower strata and material culture from surrounding households in the strata closest to the surface. Feature 73, thus, provides data for analysis at the household and the supra-household levels. A contextual discussion of the faunal remains excavated from Feature 73 is presented here. For a brief discussion of Loci 1 and 7 and Features 70 and 74 refer to the 2003 faunal report prepared by Andrea Zlotucha Kozub.

Feature 73 contained five species: cow, sheep or goat, chicken, pig and Spade foot Toads. Ten identified species of animals are represented in the entire faunal assemblage at Ludlow. Sixty-seven percent of the faunal remains were excavated from Strata C and D, which are associated with the occupants of the tent overlying this cellar feature. The majority of faunal remains from these strata belonged to cows. This statistic is not surprising for a number of reasons. First, beef lasts longer without refrigeration than

other meat, such as pork. For preservation reasons alone, colonists could have preferred beef. Also, cow bones are large, and therefore, are more likely to survive the elements of time and weathering better than smaller animal bones. Secondly, small animals, such as chicken and rabbit, were most certainly consumed by colonists. However, the bones from these animals are fragile and not as likely to survive the elements. Most importantly, any dogs or cats within the colony were probably surviving off of scraps from meals consumed by the colonists. Given this scenario, small mammal and avian bones would not preserve at the same rate as cow, sheep, or pig.

In faunal analysis of historic sites, special attention is usually given to butchering methods and cuts of meat. Butchering methods are evidenced in cut marks left on bones. The marks themselves can indicate whether meat was professionally butchered and sold by the cut or if the animal was purchased in sections and butchered by the consumer. The butchering scars on the faunal material from the site, excluding Feature 73, typically result from saws that were used to cut section of meat from the body. Some of the bones from Feature 73, in contrast, have chop marks from a cleaver or axe. Further, the marks suggest that an inexperienced person did the butchering. The absence of marks from butchering is also significant. Small animals, such as chickens and rabbits, do not necessarily require butchering. If either of these animals was roasted or boiled, the bones would not have cut marks. Thus, the absence or presence of marks on the faunal material can provide insight into the types cuts being consumed and to some degree the method of preparation. In Feature 73, two thirds of the cuts from beef were shanks from the fore and hind-quarters. Shanks are one of the most cost effective cuts of meat because they provide more meat for the price than other cuts.

Compared to the rest of the site, Feature 73 contained a disproportionate percentage of sheep remains. The MNI for the entire site was determined to be three, and two of these individuals came from Feature 73. The age of the two sheep from the feature is approximately three months old. As there were no butcher marks on these individuals, it is unlikely that they were consumed as food. Rather, the clearest conclusion is that they were being raised on site, and that they were casualties of the battle on April 20, 1914, and it is further likely that their mother was also present on site, given their young age.

We know from the documentary sources (e.g. Papanikolas 1982) that the Greeks in the colony celebrated Greek Orthodox Easter by roasting a lamb for their neighbors. This accounts for one carcass. Keeping the Greek Easter feast in mind is important when examining the faunal assemblage at the Ludlow Colony. If the majority of the colonist were in some way participating in the festivities that involved sharing a special holiday meal, we would expect to find evidence of their feasting in surface excavations and near the surface in the subterranean features, since early the next morning the volley of bullets began, usurping any cleanup of the previous evening's meal. Considering that our actual sample of faunal material is really limited to three features, it is likely that there are much more faunal material within the site that has yet to be excavated.

In summary, the faunal material at Ludlow did provide some insight into the types and quality of meat consumed by the strikers. The strikers appear to have been eating primarily inexpensive and inexpertly butchered cuts of beef. This suggests that strikers may have been provided with meat by local ranchers and supplemented their diets with

home raised pig and goat as well as hunted or trapped small game that was consumed by dogs.

#### 4. *Household Ceramic Consumption at Ludlow*

Of the features that have been excavated to date, Feature 73 provides the most comprehensive glimpse into a *household* at Ludlow. After the destruction of the tent colony, damaged possessions were pushed into the cellars that underlay many of the tents and then were filled with dirt so that the strikers could set up new tents. Consequently, the cellars contain household possessions that were destroyed during the fire and provide a glimpse into the material lives of the colonists.

When the miners and their families were evicted from their homes in the coal towns, they did not know if they would be returning. As a result, they transported as many of their belongings as possible to the tent colonies set up by the UMWA (O'Neil 1971:96-100). Thus, the artifact assemblage from Feature 73 includes the full range of household items from furniture to personal effects. The material culture from this cellar enables some discussion of the household's demographics. The number and variety of shoes and food-related artifacts removed from the feature suggest the presence of at least one adult man and woman and a few children, aging from infant to preteen. According to the 1910 census data from Berwind Canyon, households ranged between two and ten members. Not all household members were necessarily related because it was common for families to take in boarders.

#### ***Methods***

The ceramics from Feature 73 were separated from the rest of the collection and labeled according to their field specimen numbers to maintain provenience control. A total of 2221 ceramic sherds that were excavated from Feature 73 in the 2000 and 2001 field seasons. The ceramics were sorted in stages by ware, decoration, form and finally, for fragments that refit together. These groups were divided into smaller categories based on internal variation. The initial sort was by the material or ware of the ceramic sherd. The second sort was based on the presence or absence of discernible decorative techniques. Sherds with decoration were separated from plain sherds. The final sort in this process combined sherds that were either part of the same vessel or set to ascertain minimum vessel counts.

Sorting ceramics according to ware is common in ceramic studies in historical archaeology (Majewski and O'Brien 1987). Identifying ware is important because the ware of vessels corresponds to social and economic value. Porcelain required raw materials that were not readily available processed in a very specific firing environment, making it difficult to produce (Gates and Ormerod 1982; Majewski and O'Brien 1987). Consequently, vessels made of porcelain were more expensive than other wares (Claney 1996:104). The social status of porcelain was higher than other wares because it was more expensive (Miller 1988:174). Porcelain was also valued for its durability by consumers. The 1908 Sear, Roebuck & Co. Catalogue repeatedly stated that they sell only the finest "semi-vitreous china" and porcelain because of the lasting qualities of the material (1969:349).

The categorization of vessels based on ware, however, is not devoid of problems. Ware-types are, commonly, designated based on manufacturing techniques in conjunction with the historical marketing of pottery by merchants, and the distinction

made between wares tends to be very subjective (Majewski and O'Brien 1987:105). According to this method, there are four categories of ware: stoneware, porcelain, and coarse and refined earthenware. These categories are based on the degree of vitrification of the paste, or plainly said, the density of the material after it has been fired (Majewski and O'Brien 1987:108). Porcelain is the most vitrified ware, followed by stoneware, refined earthenware and then coarse earthenware. The distinctions between these wares are contingent on time and vary as manufacturing technology changes. The attributes of porcelain and stoneware change the least over time, while refined and coarse earthenware experienced the greatest technological advances. By the early twentieth century, refined earthenwares dominated the market as American pottery manufacturers improved their methods of production and were able to make more durable ceramics for less money (Gates and Ormerod 1982:5).

According to Majewski and O'Brien, refined earthenwares include non-vitreous and semi-vitreous wares. Whitewares have non-vitreous clay bodies that are white or very pale yellow, and were developed as an imitation of bone china that was popular during the mid-1800's. Ironstone refers to semi-vitreous clay bodies that are harder than whiteware but not as dense as porcelain. The differences between whiteware and ironstone are based on a gradient of vitrification, and as a result, the distinction between the two can be very subjective (1987:119-120). While this is true for nineteenth century wares, the ceramic assemblage recovered from Feature 73 contains whitewares and ironstones that are very distinct from one another. Consequently, whiteware and ironstone were separated into two categories for analysis. The other ware types are porcelain and stoneware.

After sorting sherds based on ware, the ceramics with decoration were separated according to the presence or absence of design, and then, the application or technique of that design. Decorated sherds were sorted into six categories for this study. The first grouping includes sherds with a combination of decorative techniques such as hand painting on top of transfer print or embossing with decalcomania. The remaining groups contain sherds with either hand painted, transfer print, decalcomania, embossed, or gilded designs. The decorated ceramics were sorted again by similar patterns, and then finally, sorted if refits were present.

Transfer printing was developed in the mid-1800's, and arguably, spurred a technological revolution in ceramic manufacturing (Miller 1988:172). Before transfer printing was introduced, designs on pottery were applied by hand painting, which required skill and time. Hand-painted vessels were, therefore, more expensive. Transfer print designs were applied to vessels by pressing paper containing the glazed pattern onto the vessel, and thus, was not a task that required much skill, as previous methods of decoration had (Majewski and O'Brien 1987:142). Transfer printing allowed manufacturers to produce large quantities of decorated vessels with less expense, and in turn, they were available to a wider consumer market (Miller 1988).

By the turn of the century, a new method of design application, decalcomania (decal), had replaced transfer printing as a less expensive way of decorating ceramics. Decalcomania was similar to transfer printing in that both transferred the design pattern by pressing it onto the vessel. Transfer print wares, however, were fired with a clear glaze over the design, while decalcomania was applied on top of the clear glaze and then fired (Majewski and O'Brien 1987:146). At first glance, decalcomania appeared to be the

same as transfer print wares, yet they were purchased at a considerably less cost, in part because the designs were less durable.

Throughout the 1800's and early 1900's, embossed or molded designs were common in American households. Molded designs were impressed into the vessel, resulting in a textured design. Simple molded designs without any other decoration were popular in the late 1800's (Majewski and O'Brien 1987). Responding to a shift in consumer tastes in the early twentieth century, American pottery manufacturers were producing ceramic lines that incorporated decalcomania and embossed designs (Jasper 1996; Majewski and O'Brien 1987:125).

The final design category used in this study is gilded ware. Gilding refers to the application of gold, and sometimes silver, to ceramics. Ceramics with gilded designs were common in the mid-eighteen hundreds. Gilding was often applied to ceramics with molded designs to accent relief patterns (Majewski and O'Brien 1987:153), and more rarely applied as the only decoration, often as a thin band around the edge.

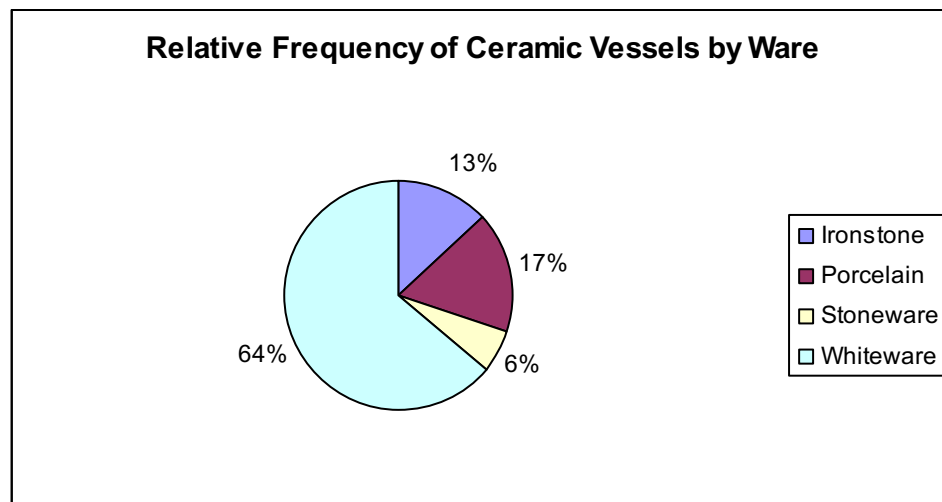
Once the sherds were sorted according to decoration, they were then separated according to their physical form. Ring bases were divided from rims and curved bodies were separated from flat bodies, etc. When this sort was completed, form, function and sets of vessels were discernible according to their characteristics. Vessels were mended when possible. If vessels could not be mended, their physical characteristics were compared to historical advertisements in Sears, Roebuck & Co. catalogues (1897 [1996], 1902 [1969], and 1908 [1969]) and collector's guides on ceramics (Jasper 1996) to determine their forms. Table settings were elaborate during late nineteenth and early twentieth centuries, and contained numerous distinctive vessels, each with their own purpose. Decorated tableware was, primarily, available in large sets containing many different forms through mail-order catalogues, while white plain whiteware was available for purchase by the individual vessel (Sears, Roebuck & Co. 1897 [1996], 1902 [1969], and 1908 [1969]). Within the coal camps, the inhabitants did have a few options of stores in which to shop. In 1912, the Tabasco and Berwind coal camps, which were located in the same canyon, each had two general stores. In Delagua, the adjacent canyon, the Hastings coal camp had three general stores (R.L Polk 1912).

Determining vessel forms is important because the size and shape of vessels suggest their potential uses during food-related activities. Modifications in vessel forms over time, often, indicate changing foodways, and are also a function of need, use, social status, and the availability of goods (Deetz 1977:73). However, it is difficult to measure change over time at the Ludlow Tent Colony because of the temporary nature of the occupation of the site. Despite this, vessel form does relate to the foodways and social practices of the inhabitants of Feature 73 prior to the Massacre. While it is acknowledged that any vessel can be used in multiple ways in a household context, examining vessel forms as they relate to foodways and consumption enables discussion of human behavior.

## ***Results***

Ware was divided into four categories based on the physical composition of the sherds. The categories are porcelain, stoneware, ironstone, and whiteware, and sherds were sorted correspondingly. Of the total ceramic sherds recovered from the feature, most (n = 1858) are whiteware. The remaining sherd counts are porcelain, n = 201; stoneware, n = 142; and ironstone, n = 85.

The number of vessels in the household was ascertained by establishing the minimum number of individual vessels present in the collection. Two categories of analysis were used to organize this data: the minimum number of vessels (MNV) and the minimum number of individuals (MNI). Ceramics in the MNV category have distinct attributes that identify them as one item. In contrast, the MNI category contains sherds that have distinct forms, but could not be associated with a particular vessel. For example, if there were five bases and eight rim sherds from cups, it was determined that there were at least five cups in the assemblage. The minimum number of vessels in the feature is 85. Thirty of these vessels were mended to determine their exact sizes and shapes. The minimum number of individuals was determined with the remaining sherds. The MNI is 35. Feature 73 contained a minimum of 120 ceramic vessels if the MNV and the MNI are combined. Sixty-four percent of these were whiteware ( $n = 77$ ), 17 percent were porcelain ( $n = 20$ ), 13 percent were ironstone ( $n = 16$ ) and six percent were stoneware ( $n = 7$ ) (*Figure 78*).



**Figure 78: Relative Frequencies of ceramic vessels by ware for Feature 73**

*Figure 79* illustrates the ratio of decorated to undecorated vessels according to ware. Out of 120 vessels, 66 are decorated (55 %). Forty-five percent of whiteware ( $n = 33$ ), 95 percent of the porcelain ( $n = 19$ ), 63 percent of ironstone ( $n = 10$ ) are decorated, and only one stoneware vessel is decorated. Nearly all of the porcelain vessels are decorated, while less than half of the whiteware vessels are decorated.

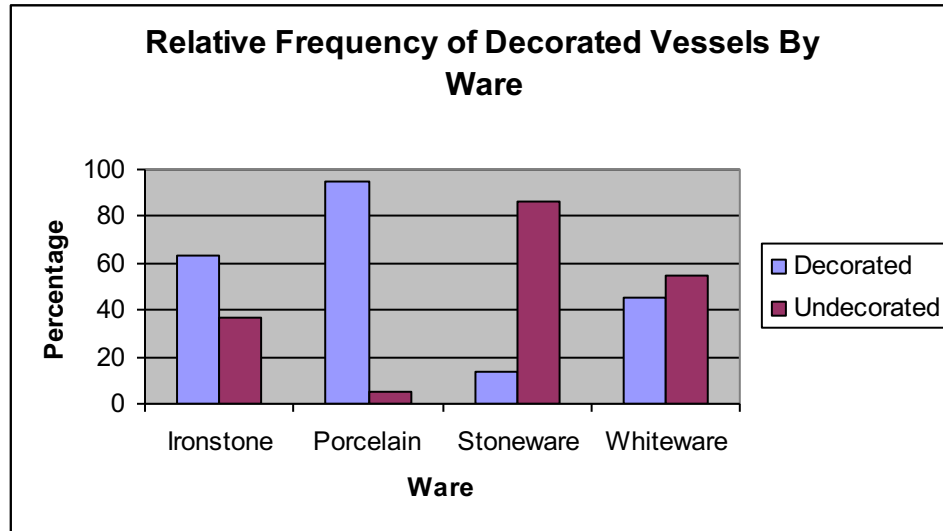


Figure 79: Ratio of decorated to undecorated vessels by ware Feature 73, Ludlow.

The decorated vessels ( $n = 66$ ) were divided into categories based on the technique of the applied design (*Figure 80*). Vessels with a combination of techniques make up 40 percent ( $n = 26$ ) of the ceramic assemblage. Two vessels are hand painted. One of them is a single sherd representing, approximately, an eighth of the whole vessel of a flow blue breakfast plate. Eight percent of the decorated vessels ( $n = 5$ ) have a transfer print design. Vessels with decal designs make up 18 percent ( $n = 12$ ), while molded relief and gilded vessels each comprise 14 percent ( $n = 9$ ) of the assemblage. One lusterware and two vessels with scalloped bodies complete the assemblage, but are not included in the chart.

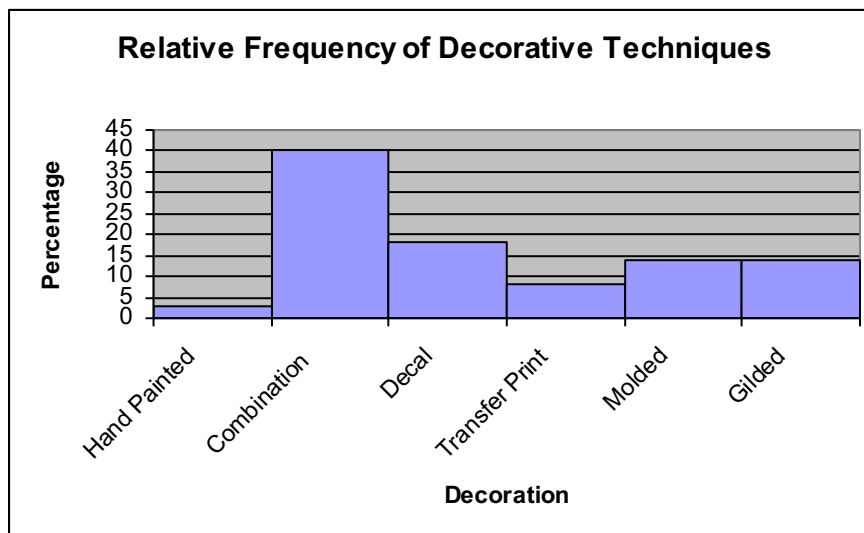


Figure 80: Frequency of decorative techniques Feature 73: Ludlow.

To establish the location and production dates of vessels, backstamps or maker's marks were analyzed when possible. Back stamps are the most reliable method of determining the lines of tableware and their manufacturing history. Ceramic manufacturers used back stamps or marks to label vessels they produced. In many cases, back stamps identified the line of tableware, and were, thus, specific to the decorations and forms of vessels. Potters reused their design patterns on different sets of tableware, and rival potters copied the designs of their competitors (Lehner 1988:6-8). As a result, design patterns alone provide insufficient information to determine the manufacturing history of vessels. When designs are viewed in conjunction with vessel forms, however, the manufacturers and dates of production can be determined. In the absence of back stamps, this is the most reliable method of determining manufacturing history.

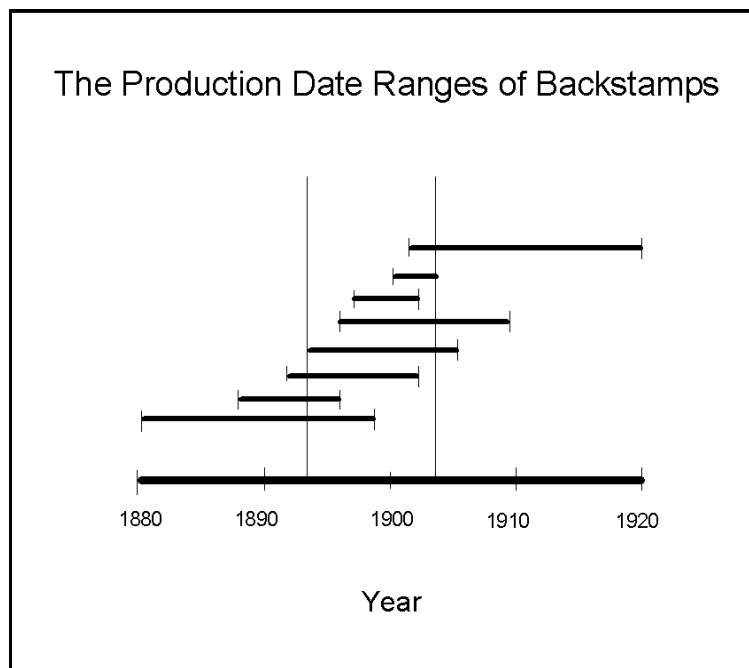
The tableware and teaware assemblages from Feature 73 contain 25 distinct backstamps, indicating production dates spanned from approximately, 1880 to 1914, (Table 32). The mean date of first production of the backstamps is 1899, and the median date is 1900. Figure 81 illustrates that the known range of production dates of eight of backstamps cluster between 1896 and 1904. From this clustering of dates, it is suggested that these vessels were purchased between these years, and that the occupants of Feature 73 were not recent immigrants, but rather arrived in the United States around 1896. The ceramics that dated earlier may represent vessels acquired upon arrival or soon after. They may also have been purchased second hand or been given as gifts.

Stamp	Manufacturer	Date	Count	a) Reference
"Buffalo Pottery"	Buffalo Pottery (Buffalo, NY)	ca. 1903	1	Lehner 1988:63
"Semi Porcelain" "M&S"	DE. McNicol & Smith (East Liverpool, Ohio)	ca. 1895- 1907 ca. 1899- 1907	1	Gates and Ormerod 1982:196 Lehner 1988:292
"East Liverpool Potteries"	East Liverpool Potteries	1901-ca. 1907 ca. 1900- 1903	2	Gates and Ormerod 1982:44 Lehner 1988:135
"Iris E.P.P. Co."	East Palestinian Pottery Co. (Ohio)	ca. 1905- 1909	4	Jasper 1996:26
"Stone China" "HP Co."	Harker Pottery Co. (East Liverpool, Ohio)	ca. 1890- 1900	1	Gates and Ormerod 1982:83
"Homer Laughlin 52N"	Homer Laughlin	May 1902 Plant # 4	1	Lehner 1988:246
"Homer Laughlin" "Genesee"	Homer Laughlin	1900 +/-	2	Jasper 1996:107-111 Lehner 1988:247
"Angelus"	Homer Laughlin	ca. 1900- 1916	1	Jasper 1996:101
"Homer Laughlin Hudson"	Homer Laughlin (East Liverpool, Ohio)	1906- 1920's 1900 +/-	1	Jasper 1996:94 Lehner 1988:247
"Hom"	Homer Laughlin	ca. 1912	1	Lehner 1988:247
"Royal Ironstone China" "Alfred Meakin"	Alfred Meakin (England)	ca. 1897	1	Kovel 1986:12



"J & G Meakin, Hanley, England"	J & G Meakin	ca. 1890	2	Kovel 1986:11
"Ironstone China" "J & G Meakin"	J & G Meakin		1	
"Charles Meakin"	Charles Meakin		1	
"Warranted Stone China" "Mellor, Taylor, & Co." "England"	Mellor, Taylor & Co. (England)	ca. 1880- 1904	1	Kovel 1986:12
"St. Louis" "O.C. Co." "Minerva"	Ohio China Co. (Ohio)	ca. 1896- 1912	1	Lehner 1988:328
"Dresden White Granite"	Potter's Co-Operative Co. (East Liverpool, Ohio)	ca. 1905	1	Gates and Ormerod 1982:217 Kovel 1986:73
"Sevres"	Sevres China Co. (East Liverpool, Ohio)	ca. 1900	1	Lehner 1988:415
"T.S.T"	Taylor, Smith & Taylor (East Liverpool, Ohio)	ca. 1901	1	Gates and Ormerod 1982:267 Kovel 1986:6
"15" in a diamond			1	
"C.P. Co." "Superior"			1	
"England" impression	(England)		1	
"Made in Bavaria"	(Bavaria)		2	
"Hand Painted" "Made in Japon"	(Japan)		2	
"J"	(Japan)		1	

**Table 32: List common backstamps and their date ranges at Ludlow**



**Figure 81: Backstamp date ranges.**

Backstamps indicate that the ceramics found in Feature 73 were produced by 18 different pottery manufacturers located in four countries. Ten potters were located in the United States (New York and Ohio); three were in England; two were in Japan; and one was in Bavaria. The location of production is unknown for two of the vessels, although backstamps are present. The majority of the ceramics with marks came from East Liverpool, Ohio, which is not surprising because American potters dominated the market in the United States after the turn of century. Ohio potters produced quality tableware at less expense than their European counterparts (Majewski and O'Brien 1987).

Some of the vessels were made by the same pottery manufacturers yet were from different lines of tableware. Two vessels have back stamps from J&G Meakin potteries from Hanley, England, and were first used in 1890 (Kovel 1986:11). A third vessel was made by Charles Meakin potteries, and a fourth was labeled as ironstone china from Alfred Meakin. The backstamp from Alfred Meakin potteries was first introduced in 1897 (Kovel 1986:12). The 1897 and 1902 Sears, Roebuck & Co. catalogues carried Meakin lines of pottery. The 1897 catalogue carried a 55-piece set of Alfred Meakin pottery for nine dollars. The set included six each of dinner, breakfast, pie and sauce plates. Additionally, the set came with six individual butters, six tea cups, six tea saucers, one open 8"-vegetable dish, one covered vegetable dish, one 12"- platter, one sugar bowl, one cream jug, one pickle dish, one slop bowl, one covered butter dish, and one sauce boat. In the 1897 catalogue, decorated and plain sets of J&G Meakin tableware were sold as sets and as open stock. A 100-piece set of J & G Meakin pottery sold for \$11.50, and a decorated open stock platter sold for 55 cents. By 1902, however, decorated Meakin tableware was only available in sets. Meakin pottery was not listed in the 1908 Sears, Roebuck & Co. catalogue. The vessels with Meakin backstamps were heavy-bodied, and likely, platters or bakers. The vessel forms are indeterminate, however, because the sherds could not be associated with any of the known vessels.

The tableware assemblage contains numerous vessels made by Homer Laughlin potteries in East Liverpool, Ohio. At least five different backstamps from Homer Laughlin are present. Fourteen sherds have some segment of a Homer Laughlin mark, but not enough to discern the line of tableware they are associated with. Three backstamps indicate the line of tableware, and are "Hudson," "Angelus," and "Genesee." In keeping with genteel segmented dining, each of these lines consisted of at least eighty distinct vessel forms (Jasper 1996:98). The Hudson line has an embossed edge that is scalloped, and is decorated with a floral design. Gilded fans and embossed stippling along the scalloped edges of vessels characterize the Angelus line of tableware. The Genesee line is plain with solid shapes and subtle designs, and the edges of vessels are not scalloped. These sets, first introduced in 1900, were very common, and readily available to consumers (Jasper 1996:94-111).

The ceramic assemblage from Feature 73 contains a variety of vessel forms, and will be discussed as they relate to the social activity to which they correspond. The stoneware vessels (n = 7), with the exception of one, are jugs associated with the storage of alcohol. The lone exception is small crock from Liverpool, England that may have contained food such as jam or clotted cream. The feature also contained two chamber pots. The remaining assemblage is divided into tableware and teaware.

### Tableware

The tableware includes individual settings and serving vessels. The individual settings consist of plates and bowls. Drinking vessels will be discussed under teaware. The plates are subdivided into plates and soup plates. Plates were identified based on their rims, and when possible, their bases. Few of the plates were mended. The assemblage contains 27 plates and two clearly identifiable soup plates. Unfortunately, because so few plates could be mended, the number of plates does not accurately reflect the diversity in the styles of plates that are likely present. At least three breakfast or bread plates have been identified by the rim diameter. One of the small breakfast or bread plate had a gilded “S” on its rim. This plate matched a similar one found in the midden on the edge of the arroyo to the north of the tent colony. Colonists used the midden as a trash dump. The plate from midden was made of porcelain, and had the letters of the alphabet along its rim. The sherd from Feature 73 may not have been the same vessel form as the one from the midden. The pattern, however, is identical. The assemblage includes a matching set of four oyster bowls and six bowls of indeterminate size and style. No other vessels that would be consistent with Victorian dining such as individual bone or butter dishes (Jasper 1996) could be identified.

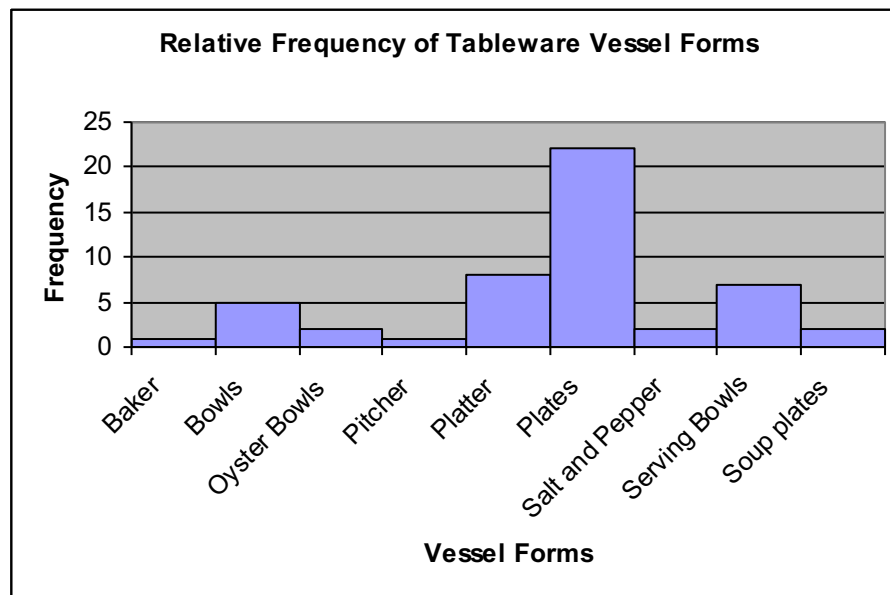


Figure 82: Relative frequencies of tablewares in Feature 73 at Ludlow.

The assemblage of serving vessels consists of bowls, platters, one pitcher, one baker and a set of salt and pepper shakers. Nine platters and eight serving bowls were identified. Three of the serving bowls are nappies, which are deep bowls of various diameters. Platters were determined by the absence of a foot along the base of the vessel in conjunction with a rather shallow side leading to the rim. The number of platters is likely inflated because they share these same characteristics with bakers. While platters tend to be oval in shape and bakers round, the actual shape of many of these vessels is not clear because many of the rims were scalloped with edges that are irregular.

The tableware in Feature 73 is not consistent with the dining practices of middle-class Americans, which emphasized selfhood through individual portions and place settings (Fitts 2002:8). The number of platters and serving bowls suggests that multiple prepared foods were served “family style” during meals. The predominance of plates (and possible soup plates) with correspondingly few bowls is not in keeping with the segmented dining of the era. The tableware seems better suited to dining practices common to areas such as modern-day Tuscany, Italy where the meals are communal events. According to Newdick and Rutherford (1997), plates with deep centers and broad rims are preferred in Tuscany because they are versatile and can hold a variety of dishes from stews to salads. While Tuscans eat bread with every meal, they are more likely to place the bread on the table rather than a plate, preferring to use smaller plates for antipasti, instead. Salads and pastas are served in large bowls from which diners serve themselves. The large bowls are used not only for food service, but also for preparing the meals. Small bowls are the perfect containers for olive oil, cheese, and condiments. Tuscan dishes are served straight from the oven to the table in the same vessels in which they were cooked. To summarize, the Tuscan dining experience is an informal event that emphasizes the communal experience of sharing food rather than formal dining etiquette (Newdick and Rutherford 1997:8-14).

Like in Tuscany, the household at Feature 73 had an eclectic assemblage of tableware. Eight distinct sets of vessels are present, and six of these are decorated. A set of four oyster bowls and two matching plates are undecorated. Oyster bowls are heavy bodied vessels with a pronounced ring base or foot. Four plates made by East Palestinian Pottery Company have a rose decalcomania design with embossing and gilding near the edge of their rims. The backstamp on these vessels identifies them as “Iris,” a line first introduced in 1905. Two plates have one thin transfer print band on their rims. Two platters, also from East Palestinian Pottery Company, have a floral decal and are embossed along a scalloped rim. The remaining two sets contain assorted vessel forms. The first set includes four plates, one platter, a nappy, and a sugar bowl. This set is embossed along a scalloped rim, and has a forget-me-not transfer print pattern. The second set with multiple forms consists of three plates, one saucer, and a platter. These vessels have gilded fans on their rims.

While the assemblage of tableware has a variety of patterns, some of the sets share design elements that have similar themes and are a near match. The three sets with floral designs have similar delicate flowers in the same locations on each of the vessels. The differences between the designs are visually subtle, and might go unnoticed by dining guests. The sets with different vessel forms may have been supplemented with the other pattern to replace broken vessels. If emphasis were placed on the presence of a floral pattern instead of particular design attributes, then these decorated vessels would match, meeting some criteria for genteel dining.

### Teaware

The teaware from Feature 73 provides a glimpse into the social practice of this household. The assemblage contains 26 cups, four demitasse, 11 saucers, one pitcher, two teapots, one creamer and two sugar bowls. Fourteen of the cups are whiteware, seven are ironstone, and five are porcelain. Nearly all of the porcelain (n = 4) and ironstone (n

= 5) cups are decorated. In contrast, only two of the whiteware cups are decorated. Four undecorated, small, and straight-sided demitasse vessels were recovered from the cellar. Eight of the saucers are whiteware and three are porcelain. Three of the whiteware and all of the porcelain saucers are decorated.

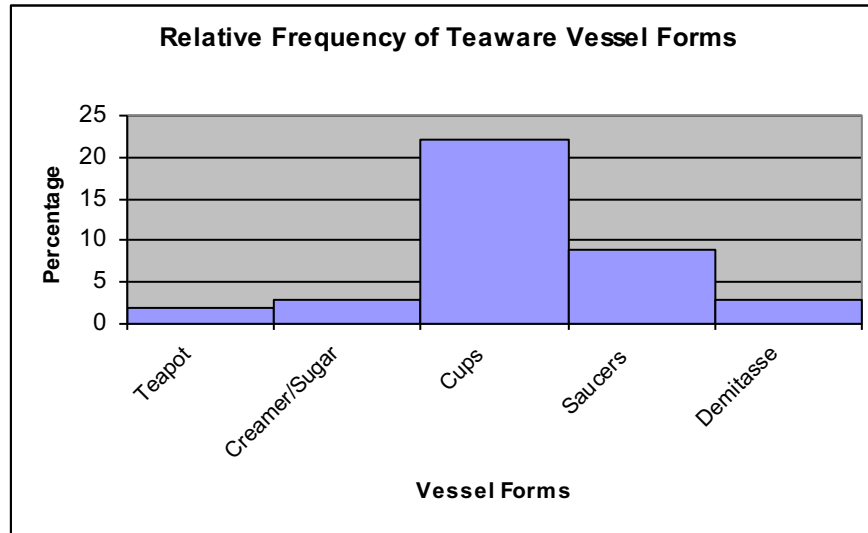


Figure 83: Relative frequency of teawares in Feature 73, Ludlow.

Many of the vessels in the assemblage of teaware have matching counterparts. In all, there are nine different sets of vessels. One whiteware pitcher has a decal design of a bunch of grapes, and has two corresponding cups. Two porcelain cups have one matching saucer, and are decorated with gilded bands near their rims. The cups have “Made in Bavaria” backstamps. A porcelain cup with a floral decal design has a matching breakfast plate. An ironstone cup matches a vessel of indeterminate shape, and both have a floral decal pattern. Two additional whiteware cups have the same embossing. Finally, there are three matching cups and three matching saucers. The saucers have backstamps from Homer Laughlin.

Diana Wall (1999) studied the ceramic assemblages of working-class and middle-class households in Greenwich Village, New York to explore their consumer patterns. She compared the teaware from a working-class family to the teaware from a middle-class family. Both households had plain, paneled “Gothic” wares that were similar to their tableware. The two households differed in that the middle-class family had a second set of decorated porcelain teaware. Wall attributed the diversity in teaware to their use in different social settings: morning and afternoon tea. Morning tea was a family affair, while the afternoon tea was a venue for socializing with community members. She suggests that middle-class women had more investment in displaying their status through teaware because they tended to be isolated from their peers, and thus, they had few opportunities to assert their gentility. On the other hand, for lower-class women, sharing tea may have been a way to create and affirm social bonds. Rather than asserting their status through decorated porcelain teaware, working-class women created community by using plain wares that did not illicit competition (1991:79).

In contrast to the teaware from the working-class family in Wall's study, two sets of vessels for serving tea were removed from Feature 73. The first set is hand painted Japanese porcelain and consists of a teapot and a creamer. This set has a floral design with gilded accents. The second set is whiteware with subtle embossing along the rim and base, and includes a teapot and a sugar bowl. The assemblage contains an additional sugar bowl that is green with white dots covering the vessel. The final vessel is represented by one oval lid from a child's tea set. The decorated, hand painted teaware and the child's tea set invite the conclusion that the household recognized the importance of serving tea. Furthermore, the practice of tea was reproduced in the children as evidenced by the presence of a miniature tea set. While the inhabitants of Feature 73 clearly possessed the material culture symbolizing tea traditions, they did not necessarily use it for tea. The set of demitasse cups actually suggests that they consumed espresso or coffee, at least occasionally. According to Mary Thomas, a survivor of the massacre, she and her neighbors regularly shared coffee (O'Neal 1971). The household at Feature 73 conveyed their civility by using finely decorated vessels, but did so on their own terms. They used their fine teawares to convey the symbols of gentility, while maintaining their cultural preference for coffee. Through their daily practice, the residents of Feature 73 met the social requirements of their new environment and retained their cultural values.

The teaware from Feature 73 is as eclectic as the tableware. The teaware is comparable to the tableware in that the decorated vessels have floral designs that are similar, and therefore, interchangeable. The clustering of manufacturing dates of vessels with backstamps indicates that the inhabitants of Feature 73 had been in the United States for at least a few years. The ceramic assemblage suggests that this household was aware of the practice of using matched sets in genteel dining, and engaged in that practice. However, they did so in their own way. The people who lived at Feature 73 used their material culture to convey the symbols that they perceived as important by placing emphasis on the mere presence of decoration.

Interestingly, most of the decorated vessels were recovered from below the charred floorboards in the cellar of Feature 73. During the final excavation of cellar, it was noted that many of the vessels, including the Japanese teaware, were associated with metal hardware and wood fragments, suggesting that they were stored for safekeeping in a piece of furniture. This particular teaware was excavated from the lowest strata of the cellar. In contrast, most of the plain ware was removed from the strata above the charred floor. The molded teaware was excavated from the upper strata, which suggests that the occupants of Feature 73 used this set during their tenure at the tent colony. Two noticeable exceptions to these trends include decorated platters and the demitasse set. A couple of the decorated platters were removed from the strata above the charred floorboards. This is not surprising, however, because all of the platters removed from the cellar were decorated. The demitasse set was excavated from strata below the floorboards, which suggests that these vessels had a high enough cultural value that they were stored for safekeeping. The positions of vessels in the cellar support the conclusion that the household mostly used plain ware in their daily practice, while reserving decorated vessels and the demitasse set for special occasions. The residents of Feature 73 were constrained by a lack of space in the tent in which they lived, and they had to choose which vessels to use and which to store. That they chose to store their decorated

and matched sets reflects the value they placed on those objects, which was likely informed by both cultural tastes and the expense of the vessels.

In sum, the colonists (based on what we see in Feature 73) appear to have been purposely using the "communal foodways." The abundance of serving vessels and preferences for coffee rather than tea, speaks to the communal nature of dining in the colony. This may be a reflection of ethnic preference as indicated by Fitts' study of dining vessels in an Italian household. However, it is also likely that it was a conscious strategy to help build solidarity in their struggle. The use of tea sets for only special occasions in conjunction with their storage in the cellar as opposed to out for frequent use, helps us to understand the minimalist conditions in the colony. The study of refit vessels in our collection was very informative as to household level dining preferences.

## **SUMMARY, CONCLUSIONS AND DIRECTIONS FOR FUTURE RESEARCH**

The data presented above support several notions about life in Berwind and Ludlow before, during and after the strike. Community organization in both Berwind and the Ludlow tent colony was subject to not only the natural landscape, but also the social requirements demanded by daily life and ideological control. The natural landscape was the primary force in determining the spatial layout and design of the communities under study. It provided the limits and opportunities for community development. The existence of coal resources in the region determined the actual settlement of the mining camps. However, daily life and social practices in the coal camps led to a spatial organization that although linked to the natural landscape, was also independent from it. Sanitation and health systems, along with shelter, structured the basic living conditions for inhabitants of both Berwind and the Ludlow tent colony. Beyond basic systems, miners, their families, and managers established systems for the promotion or deterrence of ethnicity, education, corporate communities, and social amusements. The success or limitations of such systems led to the conflict of the 1913-1914 strike and ultimately how the public observed the use of space in both the company towns and the tent colonies. Ethnic and religious differences were played out in people's interactions in space. The location of ethnic groups helped to determine with whom people interacted. For the company, the manipulation of such interactions could be beneficial in promoting company policy and influencing labor relations. In the tent colony, such interactions determined the level of solidarity and the management of the colony. For the individual, it helped establish social identity through what the surrounding community allowed in ethnic practices.

Both Ludlow and Berwind were subject to social constraints set about by either the UMWA or CF&I as well as by daily life and the natural landscape. In Berwind, early investment by the company in shelter, infrastructure and amenities resulted in a haphazard and ephemeral nature to the camps. All housing was self-constructed and designed. This also resulted in poor sanitation. However, this allowed for more control over space and architecture by miners and their families to suit their individual and ethnic needs and tastes. During the sociological period, a drastic change in company investment in housing resulted in the loss of freedoms for the miners and their families. More corporate control over space and ideology was imposed through standardized company owned housing and rules regarding living arrangements. The sociological department actively worked to control identity through housing and services (such as kindergartens). Little investment in infrastructure, amenities, and sanitation was still common. After the strike, the company enacted the Rockefeller plan, which instituted dramatic improvements to sanitation, infrastructure, amenities and housing. Company control over ideology was perhaps even more rigorous.

Studies of space and shelter in Ludlow address very different issues. There, the project was more concerned with practical issues related to function in the tent colony. How a family survived in a single tent depended on how they structured their living and storage space. Spatial analyses suggest that corners of the tents were used for storage of daily use items such as food and dishes. Cellars were also dug under tent floors to increase storage space and provide additional living space as well as shelter from the



elements and occasional gunfire. Amenities in the camp included a doctor, jungle gym and social activities such as dances and movies probably provided in the large community structure.

Ethnicity and religious segregation was more rampant in the Berwind company camp than seen in the Ludlow tent colony. Early years in Berwind showed little company investment in religious and ethnic control. Ethnic diversity grew steadily until the late nineteen teens when the war inhibited immigration. However, by 1910, 24 different ethnicities were recorded in the census for Berwind. The company deliberately integrated work crews and housing to prohibit barrios and control organization efforts. Despite these restrictions, ethnic barrios were recorded during our oral histories. In Ludlow, more solidarity across ethnicities was seen although differences were played out in language, cultural customs (such as games and music) and holidays.

With regards to health and sanitation, medicine did change dramatically over time in the town of Berwind. A decrease in the frequency of patent medicine bottles could reflect changing social practices and attitudes. Changes in the law also affect the use and distribution of patent medicines in the early 1900's. However, differences between Ludlow and pre-strike Berwind dramatically different. These may reflect a decrease in disposable income, fewer ailments related to occupational hazards, or a greater reliance of the union supplied doctor. Changes in sanitation with the institution of the Rockefeller plan did show improvements to sanitation and services. Improvements in the construction and cleaning practices of privies and the instillation of piped water into the camp improved sanitation and helped to curb outbreaks from waste and water borne diseases such as the 1901 typhoid outbreak in Tabasco.

The examination of defense focused on the tent colony for obvious reasons. The project examined several different aspects of defense. These include: community layout, rifle pits, cellars, and ammunition and firearms. Community layout proved an important factor in the placement and orientation of the tent colony for policing the activities of the militia and replacement workers. Historical accounts indicate that rifle pits were present at Ludlow during the strike and conflict, archaeological evidence does not support this. Assumptions about rifle pits may come from their presence at Forbes. Cellars were used as storage caches for ammunition and arms as well as for protection during conflicts. The analysis of ammunition confirms the presence of caches in the tent colony. The ammunition analysis also supports historical documentation related to the events of the 20<sup>th</sup> of April. Namely, the accounts that place a gunman along the northwestern edge of the colony in the vicinity of Locus 1.

Project data and analyses indicate that the perceived order and organization of the colony was used to support the arguments and agendas of both sides of the conflict. The company and militia indicate that it was disorderly and unorganized to justify policing the colonies and their inhabitants. On the other hand, the spatial analysis conducted by the project recognizes a sense of order and organization. This helped colonist create a feeling of community and home in their temporary habitation.

Consumption patterns in Berwind suggest a greater economic self-reliance in the post-strike context. Increases in fencing wire in the post-strike artifacts support documentation related to the Rockefeller plan that indicates an increase in fenced yards and gardening. The increase in gardening is also reflected in the increase in canning jars and decrease in pre-prepared foods. Families appeared to have engaged in more home

canning after the strike. There is also a decrease in liquor and wine consumption and an increase in beer. This may reflect the prohibition in Colorado and strikers' reaction with an increase in home brewing. In contrast, there is an increase in the amount of prepared and packaged foods in Ludlow during the strike. We suggest that this may be the result of union or locally supplied items in support of the strikers. Faunal remains from Ludlow support local support through amateur butchering of local cattle and inexpensive cuts of meat. There is also a marked increase in alcohol consumption at Ludlow than seen in Berwind. Household ceramic consumption patterns in Feature 73 indicate Tuscan style dining and an eclectic assemblage of serving and dining vessels. This may reflect an ethnic preference for that household.

Overall, the analyses were successful in addressing our overall research questions. The analyses related to spatial organization and community, which an emphasis on shelter, health and sanitation, and amenities show some minor improvements over time. Many of these were outlined in the Rockefeller plan of 1915. Issues of ethnicity suggest that the company tried to exercise increasing control over ethnic and religious relations over time in an attempt to restrain organization and dissention. Consumption patterns indicate that after the strike families became more economically self reliant. This may have been a response to the ultimate loss of the strike.

### **C. Conclusion**

The information presented here contributes to a small but growing database of archaeological investigations of company towns in the US. There is little historical information on life in these towns, and even less archaeological information available. Most of the extant documentation comes from the companies themselves or from the architectural firms they hired to design the towns. The use of such firms became common after Ludlow as companies became more concerned about living conditions in their towns. Archaeology can supplement or even correct the available historical documentation.

The work at Berwind focused on examining the differences in archaeological material from the pre and post strike contexts identified during our survey and excavation in two residential districts. Locus K appeared to date to the period of occupation before the strike (ca. 1895-1914), and Locus B to the post-strike period (ca. 1915-1931). In each locus a midden and privy were examined.

This work identified a number of differences between the pre- and post-strike sites at Berwind. There were differences in the architecture between the two areas, with more substantial concrete foundations at Locus B, but as this was one of the factors by which the post-strike site was selected there is some circularity here. However, research related to changes made after the implementation of the Rockefeller Plan in 1915 support these findings. There also appear to be substantial differences in hygiene. The Locus K privy was an earthen hole that was filled in with trash when it became unusable, while the Locus B privy was concrete-lined and, presumably, regularly pumped out.

The archaeological assemblages suggest that in the later period there was a decreased emphasis on canned food and drink with a shift to domestic food preparation and cooking (or home canning and ranching). This may reflect demographic shifts in the camps from single male workers to more families or it may be the result of broader supply options after the strike (i.e., more than just canned goods being available). Another trend was a significant decline in the amount of liquor bottle glass, probably the

result of the post-strike prohibition. Interestingly this decline in liquor glass was matched by an increase in beer bottle glass.

At Ludlow the project gained more information on the layout of the colony by overlaying a historical panorama of the colony over the current landscape, using this method in conjunction with GPR, auger testing and excavation. These methods revealed the layout of the colony, and exposed several tent pad locations, a possible privy and cellars. Excavations of these features allowed project archaeologists to better understand the layout, community, and life of strikers in the tent colony. We now know that the colony was laid out on a 45 degree angle with the road facing the junction between the main county road and those leading up to Berwind and Delagua canyons. The tents were laid out in a systematic manner that contrasts with the haphazard and hasty manner of construction. Cellars were indeed dug under the tents along the south side of the camp. These were used for storage as well as protection. Upon destruction of the camp, they were also used as trash dumps for the surrounding area. Feature 73 provided information regarding the life of one family at the tent colony.

Comparison of Ludlow with the Berwind sites showed some of the ways the mining families dealt with the conditions in the tent colonies. The most significant differences were in those artifacts related to food and drink. The families at Ludlow were thrown back on mass-produced preserved food, as shown by the sheer number of cans and preserve and condiment bottles recovered at Ludlow. Comparatively little in the way of faunal remains were recovered although the preservation conditions at Ludlow are quite good, suggesting that these were not a large part of the diet. Liquor consumption at Ludlow appears to have increased dramatically, while “soft” alcohol consumption such as beer and wine declined. It also not unreasonable that as the strike dragged on, liquor consumption increased in the colony as the strikers combated boredom and tension. A final notable trend was the decline in patent medicine use at Ludlow, possibly as the UMWA was supplying a doctor for the strikers.

In conclusion, both Ludlow and Berwind are significant sites that have the potential to contribute important information to our understanding of life in early 20<sup>th</sup> century company towns in southern Colorado and probably nationally and how this life changes as a result of reforms that were instituted after the wave of labor violence in the early decades of the century. Ludlow is an important site as it documents how strikers coped with the brutal long-term strikes that were characteristic of this period. These strikes had a major impact on working and living conditions throughout the US. Ludlow is the first such strike camp to be archaeologically investigated.

#### **D. Management Recommendations**

The archaeological work at Ludlow thus far has demonstrated that this site possesses both horizontal and vertical integrity, and has the potential to yield even more significant information on the lives of working families in early 20<sup>th</sup> century Colorado. Five additional cellars were identified, but not excavated, during the last season of fieldwork. Ludlow is owned by the United Mine Workers of America, and has been since 1916. The site has been protected from major disturbance as the UMWA preserves the site as a memorial to the workers who lost their lives here and as a reminder of the costs of labor struggle in the United States. There has been some minor disturbance. The field outside the monument area was been leased for training horses and cattle grazing.

The edges were graded and the parking lot has recently been paved. Given the lack of relief at Ludlow, the grading was probably significant. The site is also used for grazing cattle, which has resulted in vertical disturbance and trampling to the top few inches of the site. A second source of disturbance is low-level artifact collection by visitors, who wander over the site. There is also at least one metal detecting club that makes regular trips to the site. They have so far done little digging and have not disturbed any deep features. A third threat to the site is the erosion of Delagua Arroyo. The south bank of the arroyo was a large trash dump for the colony. The erosion is cutting into the midden deposit and significant sections have been lost. We have been sampling the midden each season.

Overall under the stewardship of the UMWA the threats to the site of Ludlow are low-level and minimal. The Union has made efforts to minimize disturbances at the site as discussed in the Management Plan. The major threat is the erosion of the colony midden. The work at Ludlow has demonstrated the significance of archaeology to very diverse audiences, both inside and outside the academy and outside the usual audience for archaeology. For example the work has been presented at labor history conferences, union halls, published in popular forums (the United Mineworkers Journal, Labor's Heritage) as well as academic ones. The project also provided the stimulus for a teachers institute on the labor history of coal mining in southern Colorado and a mock debate.

We recommend that further archaeological work be considered at the site. Ludlow has value for broadening the appeal of archaeology and for highlighting a nationally important but little known event in Colorado history. It also has research value, providing a unique opportunity to actually excavate a strike and to provide information on the lives of workers in the industrializing US. This work should continue the investigations of the deep features that have been identified so far and the sampling of the colony midden. There should also be a continued emphasis on public dissemination of the results. Ludlow is already listed on the National Register of Historic Places and is in the process of preparing a nomination as a National Historic Landmark.

Berwind is privately owned and is slated for development. Most of the land has been divided and sold since our archaeological work in 1998, 1999, and 2000. The work at Berwind has identified the boundaries of the town, mapped the surface evidence and tested two specific areas. These areas, Loci B and K, currently possess archaeological integrity and have the potential to yield significant information on life in the coal camp before and after the strike. We recommend additional testing in order to form an adequate assessment as to the internal structure of the site.

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