

**ARCHAEOLOGICAL INVESTIGATIONS
AT THE LUDLOW MASSACRE SITE (5LA1829),
AND BERWIND CF&I COAL CAMP (5LA2175),
LAS ANIMAS COUNTY, COLORADO:
FINAL SYNTHETIC REPORT**

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ABSTRACT

This report synthesizes all five field seasons' work at the striker's tent colony of Ludlow (5LA1829) and the Colorado Fuel and Iron (CF&I) company camp of Berwind (5LA2175) by the Colorado Coalfield War Project.

During the field seasons 1998-2002, the project surveyed, mapped, and excavated at the site of Ludlow. Twenty-three loci were established resulting in the identification of one possible privy, seven cellars, and seven tent pads. Of these features identified, two cellars (Features 73 and 74), one complete (Locus 1, Tent 1, Feature 21) and six partial tent pads (Features 50, 44, 77, 78, 99, and 101), and one privy (Feature 70) were excavated.

Mapping, survey and excavation at the site of Berwind was conducted during the 1998, 1999 and 2000 field seasons only. Pre and post strike areas were identified as Areas K and B respectively. In addition, excavations in a yard area, Area S, and the African American barrio, Area T, were also conducted.

The project's research on the 1913-14 strike seeks to explore variation between three historical contexts: Coal camp deposits predating, and contemporaneous with, the strike; Ludlow tent colony deposits; and Coal camp deposits dating to the decades after the strike. The research entails two main comparisons: variation between the pre-strike coal camps and the Ludlow Tent Colony will make known how the causes of the strike were rooted in the daily life of the coal camps; and variation between the pre-strike and post-strike coal camp contexts will demonstrate how, if at all, the strike changed material conditions in the coal camps and the nature of everyday camp life. In addition to these larger questions, the project examines issues of: ethnicity, spatial organization, diet and subsistence, defense, consumption, and health and sanitation in both contexts.

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I. INTRODUCTION

This report presents the synthesized results of all the field seasons that the Colorado Coalfield War Project worked at the sites of the Ludlow Tent Colony (5LA1829) and the Colorado Fuel & Iron coal camp of Berwind (5LA2175) (see *Figure 2*). The Colorado Coalfield War Project, a long-term project, involved excavating and interpreting sites associated with the Ludlow Massacre, one of the seminal events of US labor history.

The events of the strike, especially the Ludlow Massacre, and the subsequent publicity and public hearings, marked a national turning point for labor-management relations in the United States. An attitude of unrelenting and often violent confrontation on the part of management shifted to one of compromise and co-optation of labor organization as shown through the introduction of company-run unions. John D. Rockefeller's Colorado Industrial Plan, introduced after the Coal War, was the model for company unions. The strike and the hearings also focused attention on conditions in company towns and led to significant reforms in living conditions throughout the US (Adams 1966; Crawford 1995; Gitelman 1988; Roth 1992).

The Colorado Coalfield War Project has two main goals:

- 1) To raise public awareness of the coalfield strike and Coal War, Colorado's rich labor history, and the national/international significance of this history.
- 2) To gain a better understanding of how the southern coalfield strike was rooted in the material conditions of the coal camps and how daily life changed as a result of the strike.

The Colorado Coalfield War Archaeology Project was established by Dean Saitta of the University of Denver, in Denver Colorado, Randall McGuire of the State University of New York-Binghamton, in Binghamton, New York, and Philip Duke of Fort Lewis College, in Durango, Colorado.

Chapter II of this report presents a history of the Colorado Coalfield War and the Ludlow Massacre. Background to the natural and cultural environment, as well as to labor relations nationally and regionally, set the stage for the strike and the events that followed. The historical perspective allows an entry for archaeological analysis. While the strike and the massacre were both results of material conditions, we first need to address the social conditions to provide a context for material culture.

Chapter III discusses the overall research design of the Colorado Coalfield War Archaeology Project and the specific methods used during the various field seasons. The overall goals of the project for both academic and public interpretation are stated. Methods proceed uniformly each year to establish continuity and basic standards, but unique methods become required for each season. Here we describe these methods and techniques for appropriate analysis.

Chapter IV presents a synopsis of the archaeological findings for all of the field seasons combined for the site of Ludlow (5LA1829). For complete descriptions of survey, excavation and interpretation development, please see the interim reports for the individual field season. These are on file at the Office of Archaeology and Historic Preservation at the Colorado Historic Society.

Chapter V presents a synopsis of the archaeological findings for the field seasons 1998-2000 for the site of Berwind (5LA2175). For complete descriptions of survey,

excavation and interpretation development, please see the interim reports for the individual field season. These are on file at the Office of Archaeology and Historic Preservation at the Colorado Historic Society.

Chapter VI presents an interpretation and discussion of the research questions using excavation data, historical documentation, oral histories, and artifact analysis of the cultural material from Ludlow and Berwind.

Concluding the report in Chapter VII, we provide a brief summary and discuss and discuss recommendations for the site and directions for future research.

I. BACKGROUND

The background section incorporates three different aspects. First, we discuss the environmental setting of the area to set the natural stage for this research. Second, we offer a brief historic background of the events surrounding the Colorado Coalfield strike and Ludlow Massacre. This synthesizes the available historic information and sets the stage for the events related to the archaeology of this project. Finally, a discussion of previously recorded sites and archaeological work finishes this section.

A. Environmental setting

Ludlow and Berwind are located in the Raton Section of the Great Plains Physiographic Province (Trimble 1980). They are located approximately 6250-6500 feet above sea level and on average receive less than 14 inches of rainfall per year (Trimble 1980). Ludlow is located on the plains at the intersection of Delagua Canyon Road and the Colorado and Southern Railroad in SW ¼ of SE ¼ of Section 17, T31S, R64W. Ludlow lies on the Great Plains within the Grama-Buffalo Grass association. The site consists primarily of open flat treeless grassland that is cut on the northern edge of the site by an intermittent arroyo called, Arroyo Del Agua.

The CF&I company town of Berwind, on the other hand, is located up one of the canyons that cut roughly east/west and form the hogback ridges at the front of the Rocky Mountains (Trimble 1980). The town of Berwind lays primarily in Berwind Canyon, generally running from S1/2 of Section 25 through Section 36 of T31S, R65W. The town also occupies portions of Stock and School Canyons, which are off shoots of Berwind Canyon. Theoretically, Berwind lies within the pinion-juniper zone, although practically speaking the hills around the mines had been denuded of vegetation to supply fuel for the coke ovens. Providing wood for fuel and timbering for the mines was an industry in itself. The deforestation may account for the erosion at Berwind. Except in the middens, there was little depth to the soil. The geology, geography and climate of these areas were important factors that impacted miner's lives.

The geology of the Raton Basin is probably the key environmental variable in considering the lives of coal miners in early 20th century southern Colorado. Specifically, without the presence of extensive deposits of industrial grade coal, the area would have been less profitable and most likely mining companies would not have moved in as intensively, if at all, drawing miners. While the Basin would have already had huge deposits of sub-bituminous coal, a period of volcanism approximately 22-26 MYA made these deposits particularly attractive to turn-of-the-century industrialists. The volcanism that created the Spanish Peaks also produced numerous dykes and sills through the coal seams. The heat from the intrusions cooked the coal, changing it from a low-grade sub-bituminous coal to medium to high-grade bituminous coal, suitable for coking and industrial uses (Clyne 1999:2). However, these intrusions distorted, fragmented, and in many places destroyed the coal seams. Even within the same mine there could be a great deal of variability in the seam. The fragmented nature of the seams prohibited the use of undercutting machines making mining in this region extremely labor intensive and hazardous.

In addition to the geology of the area, climate also had a considerable impact on the miners' lives. On the one hand, climate led to the identification of coal deposits. The coal seams lay in the foothills and were exposed in the canyons by erosion. They were

mined by running drifts in to the canyon walls. The excavated coal was carted to the surface with mules, weighed, sorted, washed and heated in coke ovens and then dumped into trains that came into the canyons on spurs from the main line (Margolis 1985:11-26). On the other hand, the aridity of the region was a factor in mining safety. The southern Colorado coal deposits are very gassy, and even today are being explored for coal bed methane. The arid environment did not work to dissipate coal dust and gases in the mine. Such a build up of hazards led to a dangerous situation. The combination of the dry climate and the absence of enforced safety regulations made the mines very explosive (Whiteside 1990:74). The dangerous mining conditions combined with the lax enforcement of mine safety regulations were major factors that led to the strike.

Climate also affected the daily lives of miners during the strike. In this area, normal temperatures range from 13 degrees to 47 degrees Fahrenheit in January to 59 degrees to 93 degrees Fahrenheit in August making for harsh conditions year-round. December 4, 1913 saw Colorado's worst blizzard in 30 years with snow as deep as four feet falling in the southern half of the state (McGovern and Guttridge 1996:157). Many strikers living in the colony lost their tents to the weight of the snow and many others huddled around their stoves to keep the freezing weather and drifting snow at bay. A second storm followed the first and kept the strikers isolated for a short time. Miners may have used some of the tent cellars they excavated at Ludlow more for shelter from the weather and insulation than to hide from gunfire. The climate of the southern coalfields created a harsh aspect in the miners' daily lives of work and resistance, but geography added to the repression.

The geography of the canyons made it easy for the coal companies to control access to the camps. The narrow canyon entrances provided easy means to monitor workers movements in and out of the camps. In addition to the industrial facilities, the narrow floors of the canyons were also crowded with the coal camps-the residences of the miners and the various company facilities. Management controlled not only the use of industrial space, but domestic space as well. They could block union organizers and monitor the movements of their workforce (Allen 1966:57-60). The limited space resulting from the enclosing topography led to a closed corporate community, centering the lives of the miners and their families on the companies.

The influence of the environment on subsistence is not as direct as it would be for peoples relying solely on locally available resources. Ludlow and Berwind were thoroughly integrated in a national, indeed international, economic network. The rail brought in most of the miner's food and other necessities. Local food sources were acquired through purchase, as with cattle, or hunted, like the rabbit and possibly antelope.

Environmental factors impacted nearly all aspects of miners' lives both in the company town of Berwind (and others) and in the strike colony of Ludlow. While some factors, such as climate, controlled aspects of both miners' and company managers' lives, other factors, such as geography and geology, were exploited on both sides of the struggle. Either way, climate, geography and geology played key roles in shaping the activities, livelihood, and situations of the people who lived in the area.

B. Historical Background: the Coal War and its Aftermath

The Colorado Coal Strike was one of the most violent strikes in United States history. Although they were ultimately defeated, the striking coal miners held out for 14

months in makeshift tent colonies on the Colorado prairie. The strike resulted in an estimated 66 deaths and an unknown number of wounded. Although the UMWA lost the Colorado strike, it was a shocking event with far reaching effects. It galvanized U.S. public opinion, turned Rockefeller into a national villain, and eventually came to symbolize the wave of industrial violence that led to the “progressive” era reforms in labor relations (Crawford 1995; Gitelman 1988). Coal miners in Colorado did ultimately see some material gains.

The Southern Coalfields are in southern Colorado on the east side of the Rockies. The coal seams occur in the foothills of the Sangre de Cristo Mountains. The study area consists of two counties, Las Animas and Huerfano Counties (*Figure 1*). These counties were the setting of the 1913-14 Colorado Coal War.

The Southern Coalfield of Colorado supplied high-grade bituminous coal, primarily used for coking coal for the steel industry, which produced rails for the expanding rail network. Because of the interest of the railroads in maintaining a steady supply of coking coal, the Southern field was heavily industrialized, dominated by a few large-scale corporate operations. The largest of these operations was the Rockefeller-owned Colorado Fuel and Iron Company (CF&I). Founded in 1880 by John Osgood, CF&I produced 75% of Colorado’s coal by 1892 (McGovern and Guttridge 1972; Scamehorn 1992). CF&I was acquired by the Rockefeller and Gould interests in 1903. In 1906, *The Engineering and Mining Journal* estimated that 10% of Colorado’s population depended on CF&I for their livelihood (Whiteside 1990:8-9).

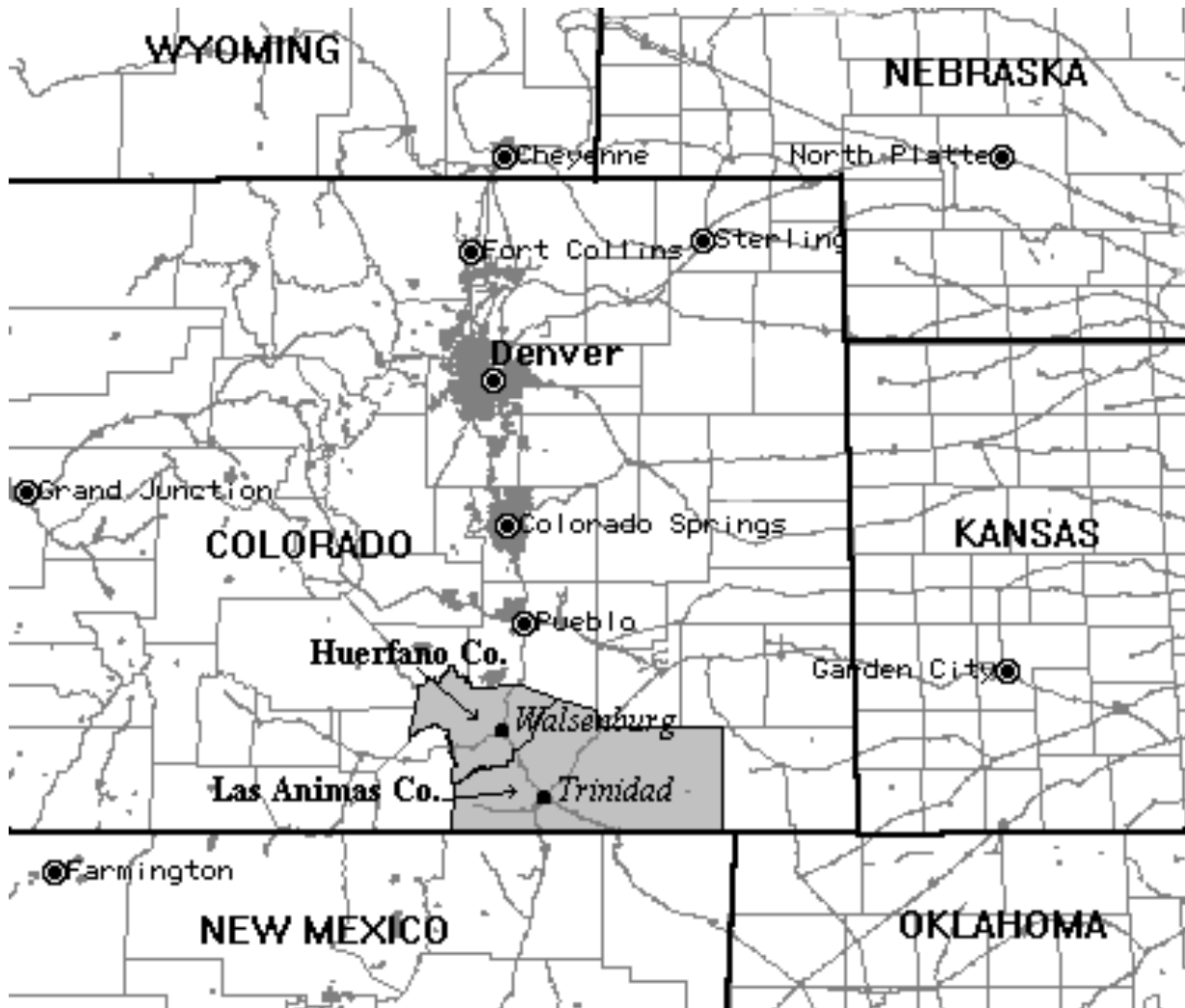


Figure 1: Southern Colorado coal producing counties: Las Animas and Huerfano.

Obviously, CF&I wielded formidable political clout in early 20th-century Colorado. Their control over the political life of Las Animas and Huerfano counties was nearly total. For example, the Sheriff of Huerfano County, Jeff Farr was a CF&I tool. In the years from 1904 to 1914, his handpicked coroner's juries found the coal operators to blame in only one case out of 95 (Whiteside 1990: 22).

The coalmines in the Southern Field were located up canyons where the coal seams were exposed by erosion. Most of the miners lived in these canyons in company towns (*Figure 2*) (company towns are listed as *Coal Camp* on this map), in company houses, bought food and equipment at company stores and alcohol at company saloons. The doctors, priests, schoolteachers, and law enforcement, such as it was, were all company employees. The entries to the camps were gated and guarded by deputized armed guards (Beshoar 1957; McGovern and Guttridge 1972).

The Colorado mines themselves were notoriously unsafe, among the most dangerous in the nation, second only to Utah. In the years from 1884-1912 (28 years), 42,898 coal miners were killed in mine accidents throughout the U.S. Of these 1,708

were killed in Colorado mines. Miners died in Colorado coalmines at over twice the national average. As mentioned above, handpicked coroner's juries absolved the coal companies of responsibility almost without exception (Whiteside 1990).

The workforce itself was largely immigrant labor from Southern and Eastern Europe, who had been brought in as strikebreakers in 1903 (Beshoar 1957: 1). Before the strike, the UMW counted 24 distinct languages in the Southern Field coal camps. In 1912, 61% of the Colorado's coal miners were of "non-Western European origin" (Whiteside 1990: 48). The Scotch, Welsh and Irish miners despised the newcomers and looked down upon them as inferior due to their Southern and Eastern European and Asian ancestry. They were looked upon not only as scabs, but also as violent heathens. The newcomers, in turn, despised and distrusted each other based on race. According to Beshoar (1957:1) "the Italians looked down on the Greeks, the Greeks scorned the Poles as social inferiors, and the latter had only contempt for the skinny-armed Mexicans." Everyone detested the Japanese and the Blacks. This obviously had consequences for organizing the miners and maintaining discipline among them during the strike. It also resulted in the strike and its violence being seen largely as a result of Greek and Balkan culture, rather than the conditions in the Southern Colorado coalfields.

The UMWA made its first appearance in the Western States in 1900 with a strike in Gallup, New Mexico (Fox 1990). In 1903, the UMWA led a strike in the Colorado coalfields. This strike was successful in the Northern Field, but failed in the South. In 1910, the Northern operators refused to renew the contract and the miners struck for the next 3 years. In September 1913 the UMWA, which had been secretly organizing the Southern Field, announced a strike there when the operators would not meet a list of seven demands. The crucial demand was recognition of the union (McGovern and Guttridge 1972; McClurg 1959). The seven demands included:

- 1) Recognition of the union.
- 2) A 10% increase in wages on the tonnage rates. Each miner was paid by the ton of coal he mined, not by the hour
- 3) An eight hour work day.
- 4) Payment for "dead work." Since miners were only paid for the coal they mined, work such as shoring, timbering, and laying track was not paid work.
- 5) The right to elect their own check-weight men. Miners suspected, generally with good reason, that they were being cheated at the scales that weighed their coal. They wanted a miner to check the scales.
- 6) The right to trade in any store, to choose their own boarding places, and choose their own doctors.
- 7) Enforcement of Colorado mining laws and abolition of the company guard system.

Approximately 90% of the workforce went on strike, 10,000-12,000 miners and their families. Those who lived in the camps were evicted, and on September 23rd the striker families hauled their possessions through rain and snow out of the canyons to about a dozen sites rented in advance by the UMWA to house them. The colonies were located at strategic spots covering the entrances to the canyons, in order to intercept strikebreakers (*Figure 2*). Ludlow, with about 200 tents holding 1,200 miners and their families, was the largest of these colonies (Beshoar 1957; Foner 1980; McGovern and Guttridge 1972).

The operators reacted quickly, bringing in strikebreakers and the Baldwin-Felts Detective Agency from West Virginia. The operators also initiated a campaign of harassment against the strikers. The harassment took the form of high powered searchlights playing over the colonies at night, murders, beatings, and the “Death Special,” an improvised armored car that would periodically spray selected colonies with machine –gun fire. The purpose of this harassment was to goad the strikers into violent action, which would provide a pretext for the Colorado Governor to call out the Colorado National Guard, thus shifting a considerable financial burden from the operators to the state (Foner 1980; McGovern and Guttridge 1972). Amid steadily escalating violence in the coalfields and pressure from the operators, Governor Ammons called out the Guard, which arrived in the coalfields in October 1913.

After a brief lull in hostilities, the militia commander, General Chase essentially declared martial law in the strike zone. Chase, a Denver ophthalmologist, had been involved in suppressing the earlier Cripple Creek Strike. Highlights of this period of unofficial martial law included the suspension of habeas corpus, mass jailings of strikers in “bullpens,” a cavalry charge on a demonstration of miners’ wives and children, the torture and beating of prisoners, and the demolition of the tent colony at Forbes. Chase also enlisted a considerable number of mine guards as militiamen (McGovern and Guttridge 1972; Foner 1980; Papanikolas 1982).

As the cost of supporting a force of 695 enlisted men and 397 officers in the field bankrupted the state, all but two of the militia companies were withdrawn after 6 months (McGovern and Guttridge 1972). The militia companies that remained were made up primarily of mine guards. On April 20th, after the miners at Ludlow celebrated Greek Easter, at about 9:00 AM gunfire broke out at the colony. The exact circumstances are uncertain. Those miners who were armed (how many is unknown) took positions in a railroad cut and in prepared foxholes to draw fire away from the colony. The militia sprayed the tent colony with machine-gun and rifle fire. By the end of the day the force facing the miners consisted of 177 militia, and two machine guns. In the evening a train conductor stopped his train on the tracks between the militia and the colony, which permitted most of the miners to escape though the arroyos. By 7:00 PM, the tent colony was in flames and the militia was looting everything they could. The leader of the Greeks in the colony, Louis Tikas and two other strike leaders were captured and summarily executed (McGovern and Guttridge 1972; Papanikolas 1982).

1913-1914 Coal Strike

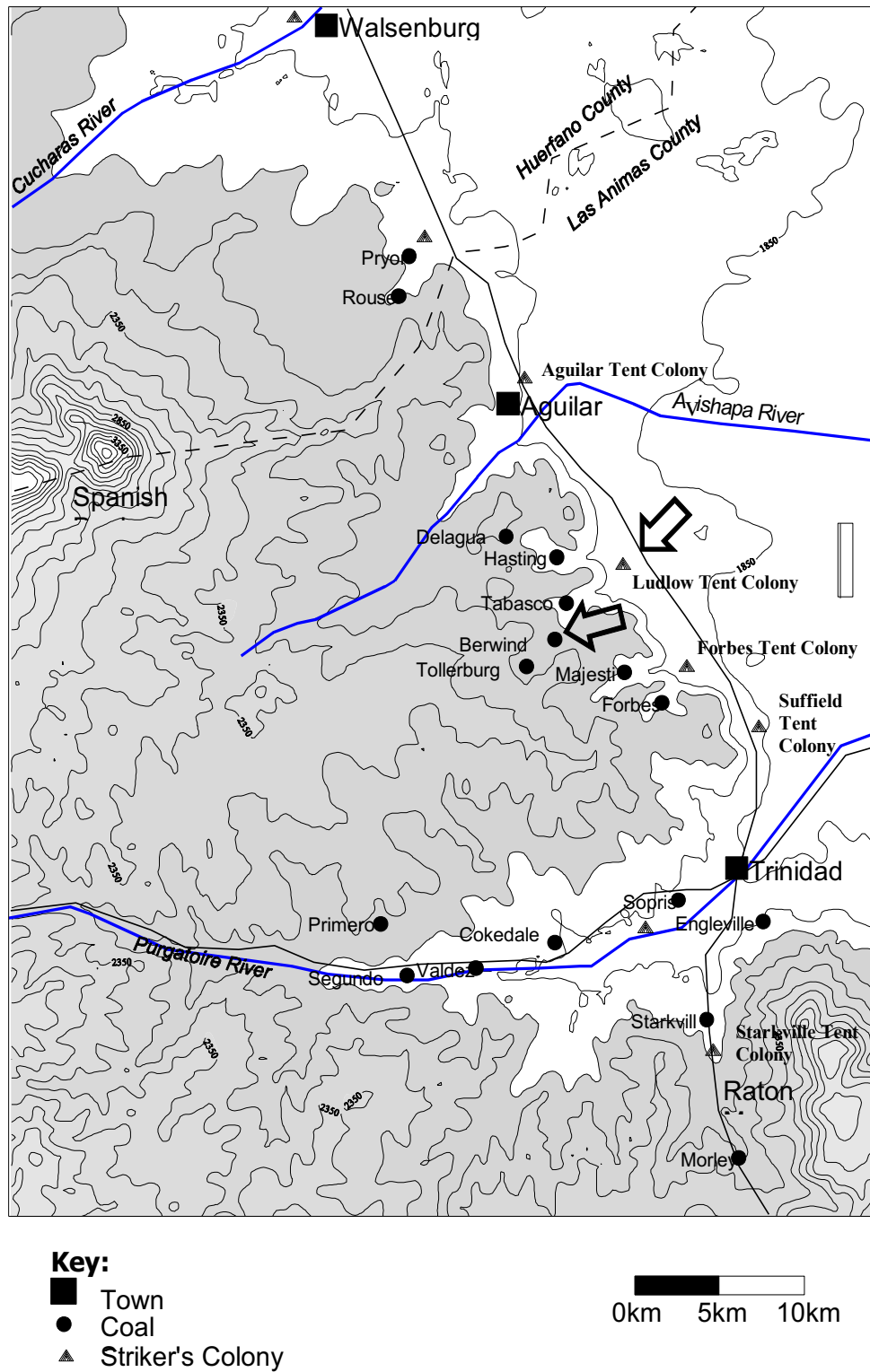


Figure 2: Map of the Strike Zone and surrounding areas.

The known fatalities at the end of the day were 25 people, including three militiamen, one uninvolved passerby, two women, and 11 children. During the battle, four women and ten children took refuge in a pit dug beneath a tent. All but two, Mary Petrucci and Alcarita Pedregone, suffocated when the tent above them was burned. The dead included Mary Petrucci's three children and Alcarita Pedregone's two children. This pit became infamous as the "Death Pit" (*Figure 3*).



Figure 3: Death Pit

When news of Ludlow got out, the striking miners at the other colonies went to war. For 10-days they attacked and destroyed mines, fighting pitched battles with mine guards and militia along a 40-mile front. The fighting ceased when the desperate governor of Colorado asked for Federal intervention. It took intervention from the Federal Government and National Guard to end the gunfire, however, the strike still continued. This intense fighting following the massacre is called the 10-Day War. After the massacre and the 10-day War, the strike dragged on for another 7 months, ending in defeat for the UMWA in December 1914 (McGovern and Guttridge 1972).

After the strike ended, mass arrests were made of the miners, 408 in total, with 332 being indicted for murder, including the main strike leader, John Lawson. These

trails dragged on until 1920. All were eventually quashed, with most never coming to trial, probably due to Rockefeller's influence. The massacre of women and children proved to be a public relations nightmare for CF&I and Rockefeller in particular. This bad publicity sparked him to begin the first corporate public relations campaign in history. He also instituted the Rockefeller plan, which provided a means for workers to air their grievances. It also set in motion some basic improvements to the camps, including sanitation. However, most of the worker's original grievances were not addressed. Rockefeller's involvement in ending the cases against the miners was probably the result of both a need for him to cease discussion surrounding the massacre that was tarnishing his name, as well as a need to create a more stabilized environment to initiate his new policies. In contrast, the Colorado National Guard court martialled and later exonerated 10 officers and 12 enlisted men for the Ludlow Massacre (McGovern and Guttridge 1972).

The UMWA purchased 40 acres containing and surrounding the site of the Ludlow colony by 1916. President White officially proposed a memorial for the site at the 1916 convention. The convention passed the proposal. Later that year, several hundred coal miners met at the site of Ludlow and joined the union. Regular commemorations seem to have been held at the site thereafter. The monument was finally dedicated May 30, 1918 (UMWJ 1918). The Death Pit was preserved, and consists of a concrete pit, which people can walk into.

In subsequent strikes in Southern Colorado, the memory of Ludlow was invoked in mass meetings at the site. It was also safe ground for miners to meet as the UMWA owned the land and provided access to union meetings. At a strike in 1921, the UMWA erected four tents on the site of Ludlow in defiance of an order by the Colorado Rangers not to erect tent colonies. The IWW (Industrial Workers of the World) also legitimated a strike by holding a meeting at the site of Ludlow (Whiteside 1990: 129).

For the UMWA, Ludlow came to serve as an icon of industrial conflict. It was felt to mark a turning point in the struggle for union recognition. As a result of the increasing labor violence at the turn of the century, there was a growing belief among all classes in American society that the industrial system was in need of some reform, if not fundamental transformation, to stave off class warfare (Adams 1966).

C. Previous Archaeological Work

The Colorado Coalfield War Archaeological Project has been the primary research project in the area of Ludlow. The project has worked to further define the daily life of the strikers and their families before, during, and after the strike. The project initiated during the 1997 season and has continued through the 2002 field season. For this research, archaeologists have conducted multiple surveys as well as testing and excavation.

In 1997, the project archaeologists excavated a trench at Ludlow and confirmed that there were intact subsurface deposits. In the 1998 season the emphasis was on defining the precise nature of the known features and on identifying and testing additional features in different areas of the colony. In 1999, the project continued investigation of features identified at Ludlow in 1998, conducted testing to identify additional features, and identified features using a photo overlay trick. A field chief and crew also conducted testing in two areas of Berwind that had the potential to yield deposits significant within the research design. Additional testing at Berwind was also conducted during the 2000 field season. In both the 2000 and 2001 seasons project leaders concentrated on intensive excavations in two cellars and identifying tent pads located during the 1999 field season. The 2002 field season focused heavily on site layout and public interpretation. In all years we tested the midden area near the arroyo that is in danger of erosion into the arroyo.

Documented historical cultural resources in the vicinity of Ludlow prior to the Colorado Coalfield War Project are mostly related to the early 20th century ranching economy of the plains. These consisted of a 1920s ranching complex (a corral, stock shed, and windmill) (5LA8528), a 1930s ranch complex (with a barn and trash scatter) (5LA5805), a 1940s farmhouse (5LA5808), and irrigation ditches (5LA5801 and 5LA5806). Five historical dumpsites/trash scatters have also been recorded. Of these, one (5LA8527) has car parts and another (5LA5802) was a car (a two-seater automobile). 5LA8519 was a historical trash scatter (including a 1906 penny) in a diversion ditch. The other three trash scatters also had prehistoric components. In the case of 5LA8551 this was merely a single flake, while 5LA8518 consisted of a lithic scatter and late 19th/ early 20th century trash. 5LA8504 was a historic trash scatter along with a lithic scatter. The remaining recorded historical sites were two sections of the same railroad grade, sites 5LA5807 and 5LA8507.1, and a section of the Delagua Canyon spur (5LA8545.1). The railroad and the spur are significant within the context of this research as archaeological resources relating to the coal-mining industry in Las Animas County.

In addition to three multi-component scatters noted above, archaeologists documented six other prehistoric sites near Ludlow. Two of these are isolated finds of flakes (5LA5800 and 5LA6035) and one (5LA5803) is a lithic scatter. The remaining three prehistoric sites (5LA1191, 5LA8509, and 5LA8512) comprise a cluster of campsites between Delagua Arroyo and another unnamed intermittent watercourse. All three sites had lithic scatters. 5LA1191 had some pottery, and 5LA8509 and 5LA8512 had manos. 5LA8512 also yielded a biface.

Material and cultural evidence is prevalent for both prehistoric and historic periods in and around the Ludlow colony. Most of the evidence relates to the coal industry. This was the economic base for the area, and as an industrial enterprise, left a

longstanding mark upon the cultural landscape. The Colorado Coalfield War Archaeological Project has worked to document this portion of Colorado's industrial history. The Ludlow colony is a part of this history, and over the past 6 seasons, we have developed an interpretation of the interrelations between the material culture, labor relations, and the cultural landscape all resulting from our research design.

II. PROJECT RESEARCH DESIGN

This chapter is composed of three main sections. The first section explains the overall research design and goals of the project. The second section discusses basic field methods for the project used throughout the project. The third section presents specific methods employed for the 1998 through 2002 field seasons that diverged from the overall methods.

A. Colorado Coalfield War Archaeology Project Research Design

This section presents the specific work the project proposed to conduct at each of the three sites identified in the Scope of Work. The research on the 1913-14 strike seeks to explore variation between three historical contexts:

- Coal camp deposits predating, and contemporaneous with, the strike
- Ludlow tent colony deposits
- Coal camp deposits dating to the decade after the strike.

The research entails two main comparisons:

- Variation between the pre-strike coal camps and the Ludlow Tent Colony will make known how the causes of the strike were rooted in the daily life of the coal camps.
- Variation between the pre-strike and post-strike coal camp contexts will demonstrate how, if at all, the strike changed material conditions in the coal camps and the nature of everyday camp life.

Analysis of differences between these contexts will also involve analysis of variation *within* contexts. For example, the project aims to explore whether significant differences existed between ethnic groups in their conditions of everyday life in the coal camps and at the Ludlow tent colony.

Due to the multiple levels found in the Ludlow colony from household activity areas to community areas, we will need to consider two scales of analysis: that of the community as a whole (i.e., at the Ludlow tent colony as a whole, and in a coal camp, the town, or possibly the neighborhood as a whole); and that of the individual household (the tent platform or house lot). For example, at Ludlow the privies were communal and probably filled with trash from the colony, whereas at Berwind each house lot had an individual privy containing trash from an individual household. Middens, on the other hand, reflect material from the wider community. The Ludlow midden contains material from the entire colony, whereas the middens at Berwind contain material from the immediate neighborhood.

Our analysis will have two main, and inter-related, axis:

- 1) The household
- 2) Supra-household material conditions.

1. The Household

In looking at the household, the project will seek to identify:

- The ethnicity and/or the religion of the occupants, and
- Household consumption

Making these initial identifications permits us further address issues of ethnicity and gender. In the coal camps, they can identify ethnicity, ethnic neighborhoods, through a combination of documentary research (especially census records), oral histories, and

certain classes of artifacts and architectural features, such as *hornos* or stone bread ovens (e.g. Wegars 1991). At Ludlow, the project will have to rely primarily on archaeological data to identify ethnicity or religion. Artifacts indicative of ethnicity include religious medallions and certain styles of tobacco pipes. Some embossed bottles may also suggest ethnicity. Within a single household, these types of identifications may prove very difficult since medals and medallions would most likely have been worn on the individual and therefore only remain in the tent if it had been lost.

Beyond ethnicity, a great deal of intra-household variation will be the result of household consumption practices—whether the house or tent was occupied by single miners or bachelors, or by families will dictate the types of objects they will possess. At Ludlow, it should be possible to distinguish between the different kinds of occupation on the basis of the actual size of the tent or tent platform. Very large tents may indicate a barracks of single men. Conversely, very small ones may indicate a single occupant. The artifacts associated with the individual tent platforms will also help inform us about household composition. The presence of toys would indicate children. Clothing-related and personal artifacts, such as certain styles of buttons, shoe parts, jewelry, combs, etc., will indicate the genders of the occupants. Archaeologists working on 20th-century logging camps have suggested that artifacts such as decorated ceramics, pressed glass, and fragile glassware may indicate the presence of women (Brashler 1991: 64; Franzen 1992: 92). This is not an unreasonable assumption insofar as these sorts of artifacts suggest the presence of families in an otherwise male environment.

Determining whether single men occupied a house or a family is more complicated in the coal camps than at Ludlow. Single men would have stayed in company-run boarding houses or as boarders with families or widowed women. Some men stayed in their own houses or shared a house with another man. Household composition in the coal camps can be determined through a combination of historical and archaeological evidence. The size of the foundations and the nature of the artifact assemblage, together with census records, maps, and company records, will give us some idea as to the nature of the household.

Looking at consumption can also give project researchers insight into the types of activities in which the occupants engaged. For example, looking at serving and eating vessels can give us an idea whether the families engaged in family style dinner service or individual. This in turn can inform us as to the degree in which the families had become “Americanized.”

2. Supra-household Material Conditions

In our study of supra-household material conditions, the focus will be on two main issues:

- The spatial organization and community;
- Diet and Consumption.

In considering spatial organization, the project archaeologists will be working at a community level of analysis. There are three main aspects of spatial organization that interest us:

- Ethnic/religious segregation
- Health and sanitation
- Defense

- Shelter
- Organization and Order

The archaeologists will try to identify neighborhoods based on groupings of households with similar *ethnic or religious affiliations* and also on the spatial layout of the community. The presence or absence of such neighborhoods and the material differences between them can provide information on ethnic segregation, boundary maintenance, and how ethnic differences were negotiated during the strike.

A second, related issue in looking at spatial organization is *health and sanitation*. Variation in features such as privies, drains, trashpits, middens, and streets can provide information on the investments made by mining companies in the coal camps, and whether certain ethnic groups were privileged over others. At Ludlow, the relative standardization of such features may suggest the degree of centralized organization of tent colony affairs. Artifacts and ecofacts can also tell us about health. For example, privy soils can yield evidence of particular parasites. Medicine bottles are also a valuable source of information on health, especially if they are embossed.

A third issue in looking at spatial organization, one that is exclusive to Ludlow, is that of *defense*. The strikers may have excavated features such as foxholes (McGovern and Guttridge 1972: 217). This would suggest that the strikers were expecting an attack and had an organized plan of defense. A second class of features that is relevant here are the tent cellars. Some of the historical accounts indicate that the pits were excavated in the month leading up to the attack for purposes of defense. One informant that 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.*). Another possibility is that pits were excavated beneath the tents to conceal items from National Guard searches. The cellars most likely had multiple uses. Archaeological investigation can shed light on the functions of these pits, the degree to which their plan was standardized, and whether they constituted a series of individual responses to different problems.

The main artifacts that will provide information about defense, and about the battle itself, are gun parts, cartridges, and bullets. Cartridges and gun parts will 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. A metal detector survey of selected areas of the battlefield, with recording of the orientation of the bullets and cartridges, would also provide historical information on the conduct of the battle. The military capabilities of the two sides, in particular weapon types and minimum numbers, can be evaluated (Scott et al. 1989).

In our analysis of shelter in the coal camps and at Ludlow, researchers will consider the construction of architecture of the houses and tents, as well as structure “amenities” such as furnishings, plumbing, and lighting. The archaeologists will be looking 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. This will give us some idea as to how many people could have lived there. Through the analysis of architectural features such as post and stake holes, nail alignments, and the materials used in constructing foundations and cellars they will be able to ascertain construction differences between different areas of

the towns, the degree of standardization in construction, and whether construction improved after the strike. 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).

Furnishings (broadly defined) are also considered part of housing. 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 nature of certain aspects of domestic labor in coal camps and the tent colony, and differences in living conditions between different areas of the community.

The project will be considering two aspects of diet in the coal camps and the tent colony: subsistence (i.e., what miners were eating and drinking and how it was obtained), and food ways. The features that will provide information about diet are cellars, privies, trash pits, and middens. At Ludlow, these features will provide information at a community-wide level of analysis. In the coal camps, the level of analysis will depend on the particular circumstances. For example, in the coal camps trash pits and privies are often associated with individual house lots, although there are community dumps. However, historical sources also indicate that in some coal camp neighborhoods before the strike privies may have served as many as ten households. Features at Ludlow that are likely to provide information on individual tent households are the artifact assemblages associated with the tent platforms, the tent drainage ditches (which likely accumulated trash from the immediate area), and possibly certain stratigraphic contexts of the tent cellars (assuming deposition of *de facto* refuse from the catastrophic abandonment and burning of the colony).

The artifacts that will provide information about the composition of diet of the miners in the camp and at Ludlow are faunal remains, plant remains such as seeds (from privy and pit deposits), and artifacts such as bottles, cans, and certain ceramic and tin ware artifacts. Species identification of faunal and floral remains will tell us whether, and how, the miners' were supplementing their diet through the hunting and trapping wild and the gathering of plant foods. The formal aspects of bottles and tin cans (glass color, size shape, form, closure type, means of opening, etc.) can provide general information about the original contents. Labeled or embossed cans and bottles can obviously provide much more specific information about contents. As bottling was still a fairly local industry in the 20th-century, bottles have the greatest potential for informing us about local trade networks.

Certain ceramic and tin ware artifacts, (e.g. coffee and tea wares) are also indicative of diet. These artifacts, along with jars, bottles, and faunal remains, can provide information on how food was stored, cooked, and consumed. For example, butchery marks on bone and the presence of canning jars, condiment bottles, and different kinds of kitchen vessels, can all provide data on how food was prepared and cooked. The social role of food and drink service, and the associated ceramics, has been the subject of a considerable literature in historical archaeology. These ceramics are generally seen as part of the household's presentation of itself to the broader community, either as part of competitive social display and/or emulation of upper classes (Martin 1994), the building of community networks (Burley 1989), demonstration of adherence to

a certain cultural worldview (Deetz 1977; Leone and Potter 1988), or the representation of certain political or social beliefs (Shakel 1996).

Differences in diet, or the lack thereof, between households and between the colony and the coal camps can provide information on ethnicity, domestic labor, the dominance of the company store in the camps, and the degree of union support of the tent colony.

In looking at consumption, the project is fortunate in having access to documents including catalogues and possibly company store records that can provide us with prices for many of the artifacts. This permits us to compare the relative financial worth of different assemblages, in turn allowing insight into amounts of disposable income controlled by different households, and how these households chose to allocate their income.

Order and organization examines the layout of the tent colony and camp to examine the effects of the union and company on inhabitants in both. This will compare historical documents to the archaeological data for each to examine whether the accounts are accurate or whether they provide misleading information.

All artifacts recovered will be cleaned, bagged, and catalogued. The cleaning will depend on the material and its condition. For example, glass and ceramic will generally be washed, whereas most metals will only be dry-brushed. The archaeologists will take appropriate conservation measures depending again on the nature of the material and its condition. All artifacts will be stored in re-sealable polyethylene bags with complete provenience information recorded in indelible ink. The bags will be stored in archival boxes by bag number. For the artifact analysis, the project will use a standardized cataloguing system in order to facilitate comparisons between the sites. Preservation of the artifacts is a priority in that they will be the main source of activities for both scales.

In summary, the project seeks to examine variation between three different historical communities:

- Coal camps predating, and contemporaneous with, the strike
- The Ludlow tent colony
- Coal camps that date to the decade after the strike.

Within each of these communities, the project will look at the interaction between

- Household, in particular ethnic/religious affiliation and household composition; and
- Supra-household material conditions, concentrating on spatial organization, shelter, diet and consumption.

By comparing the pre-strike and post-strike coal camp contexts, it should be possible to see how conditions changed through time, and, by comparing the pre-strike contexts with the Ludlow Tent Colony to see why these conditions changed.

B. Overall Field Methods—Survey, Excavation, and Laboratory

Over the five years that the project excavated at the site of Ludlow, certain goals and methods were employed consistently every year. These include:

- Feature Identification
- Feature Testing
- Midden Testing
- Berwind Testing

- Archival Research
- Mapping
- Laboratory Analysis

Each will be discussed below in order.

1. Feature Identification

Because a long-term goal of this project is the analysis of variation between households in the colony, the identification of households and associated features was a central concern at Ludlow every season. As most of the structures were tents, we did not expect substantial architectural footprints, especially since the site has been subjected to cattle trampling for the past 80 years. However, identification of partial tent outlines and cellars was possible despite the ephemeral nature and disturbance of the site. Another goal of feature identification was to give us an idea of the overall extent and layout of the colony, both as a guide for testing efforts and to provide information on the organization of the colony itself. Over the years, the project leaders used, or intended to use, a number of methods in conjunction to identify the layout of the colony and features within the colony. These include:

- Photographic overlay
- Remote Sensing
- Hand Augering
- Test Excavations

a) Photo Overlay (By Daniel Broockmann)

In 1998, 1999 and 2002 we attempted to overlay negatives of historical photographs of the tent colony on to the current landscape (Deetz 1993; Prince 1988). This was unsuccessful in 1998; due to a number of technical issues, the archaeologists were unable to complete the overlay project. This technique was unsuccessful because the camera lens used in 1998 was incompatible with that used to take the original photographs. In 1999, the problems were resolved, and a team under the direction of Randall McGuire and Dan Broockmann was able to correlate the historical photographs with at least a good deal of the modern terrain. Through consultation with the curator of the Aultmann Museum in Trinidad, we were able to identify the original lens, and also a comparable modern lens. In addition, part of our original plan was to identify tent locations by using a technique of overlaying historical photographs on the modern landscape. This was attempted in the 1999 and 2002 field seasons.

The basic premise of overlaying historical photographs on the current landscape is that one should be able to line up features in the photograph with those in the modern landscape, thus determining the modern location of historical features. To do this a camera with a removable viewfinder is required. Negatives of the historical photographs are then cut to fit the viewfinder. After reassembling the camera with the negative in place, one sees the historical photograph overlaid on the landscape the camera is facing. It is then theoretically possible to look through the viewfinder, line historical landscape elements up with contemporary ones that have remained unchanged, and locate those historical features that have disappeared. Beyond the technical requirements, this technique also requires that there be surviving elements to line up on and that the

archaeologist knows the location of the original photographer's position. Small errors in lining up the image can result in gross errors in the final result. For this technique to work it is also important that the lens be as close as possible to the original lens. Generally this information is not available but the archaeologists, in consultation with the curator Aultmann Studio in Trinidad, were able to make a good guess as to the kind of camera and lens that Lou Dold, who took the original triptych in 1914, had used.

Once the landscape has been lined up with the photo, the locations of features that are no longer extant such as, in this case, tent locations, can be marked based on directions from the person using the camera. As an aside, the experience of looking through the viewfinder and directing someone who seems to be walking around inside a historical photograph is an unusual and disorienting one.

The photos used in the 1999 overlay project were what amounts to a panoramic triptych of the colony taken shortly before the massacre. There is a slight time interval between the photos since some people appear in the center photo but do not appear in the northern one where the two photos overlap. This time interval is not significant as there is no discernible change in the snow on the ground. The photo was taken from an elevated point west of the colony. The location and elevation are consistent with a water tower located on the railroad tracks, north of the section road. For designation purposes, the tents were numbered on the photo (*Figure 5*).

In the 2002 field season, project leaders and crew chiefs decided to attempt the photographic overlay from the ground level within the tent colony. Using multiple images taken within the colony and outside the colony at a lower angle, project members believed we could get increasingly accurate locations of tents and cellars. Project leaders used 8 photographs of the colony taken at different times, both before and after the massacre. Project leaders also assumed the photographs were taken at different locations within the camp based on the background landscape. Field researchers chose the photographs based on the marked natural landscape in the backgrounds, such as ridgelines. By matching the natural features from the present landscape with those in the photographs, staff members could identify features on the landscape portrayed in the photos. Then project participants marked possible locations of features.

The camera used was a standard 35mm Nikon SLR with a removable viewfinder. Negatives of the three photographs of the colony were printed up separately and trimmed to fit the viewfinder. The negatives were placed in the viewfinder backwards to compensate for the reversal of the camera lenses.

Once the technical problems of making negatives and fitting them to the camera had been solved, the main problem was setting the camera up in the correct location. For the 1999 season, the fact that the photo was not taken from the ground, but from a point that is now empty air compounded the problem, adding a third dimension to the other two. After establishing the approximate location of the tower from the colony panorama and another photo of the tower itself, the project rented a scissor lift with drive controls in order to get the necessary height.

It is unfortunate that many of the colony photos were taken from the west, which means that eastern Colorado forms the backdrop, a landscape not noted for its relief. The useful features in the photos were the Black Hills to the east, the section road to the south of the colony, and the extant buildings of Bayes Ranch to the northeast. Of the three parts of the triptych, the southernmost photo was the most promising one for lining up the

camera as it showed both the road and the Black Hills. The 2002 photos from the ground faced a variety of directions. The photos facing west, north and south were the most successful as these directions offered the most relief in the landscape and the most readily identifiable features.

Lining up the camera for the 1999 season was a long ordeal, entailing moving the scissor lift in three dimensions to get the right distance (east-west), angle (north-south), and elevation. This was also complicated because the lift had to be lowered every time a train came by to avoid being blown over. Eventually the team achieved what they felt was an optimal position, but some caveats should be borne in mind. The north-south placement of the camera was easier to judge than the east-west placement or the height. Therefore, the location of the tents on the north-south axis is probably more accurate than the east-west axis. Comparison of the photo to the mapped results suggests that the mapping of the colony using the photo overlay may be compressed on the east-west axis. The placement of the westernmost (closest) tent locations is more accurate than those further away simply because slight errors, even shifts in the position of one's eye at the viewfinder, became so much greater with distance. There is still the possibility of error in the closest tent locations, but it is going to be a matter of a few meters.

Once the team fixed the camera location as best as possible, it was able, with the aid of archaeologists on the ground and walkie-talkies, to begin flagging the tents. This was done with pin flags numbered the same as the numbering on the colony photo. Based on direction from the scissor lift, the flags were placed if possible at the northwest and southwest corners of the tents, as these were the corners visible in the photos. Another problem here is that trees and the pavilion blocked areas of the modern landscape. It was not possible to navigate the flaggers to the tent corners, leading to blank areas on our map. The team was still able, with varying degrees of confidence, able to map about 40% (52 of 132) of the tents identifiable on the photos. Project leaders attempted to fill in some of these blank areas using photos from the ground level within the monument area in the 2002 field season. The overall methods were the same except for the use of the scissor lift.

The team then shot the flags in with the EDM and once the field season was over entered them in to AutoCAD LT to combine them with electronic site maps.

We then attempted to ground truth our results through hand auger regimes and area test excavations. Unless there was a tent cellar that could be identified through augering, identifying tent locations has been a matter of fairly large-scale area excavations. Until it is possible to test some of the tent locations through large-scale excavation, one means of at least increasing the confidence in the method was overlaying the CAD map generated by the photo overlay with the contour map of artifact distributions generated from the 1997 fieldwork. There does appear to be a correspondence between linear artifact concentrations and the tentatively identified tent rows. Tents 32-34, 41, 42 and 46 lie along an artifact concentration, as do 117, 118 and 120, and 37, 38, and 47. Tents 51, 53 and 54 are associated with a particularly dense and unusual artifact concentration, possibly a communal dining area (CCFAP 2000). It may be that the Locus 1 Tent excavated in 1998 lies outside the boundaries of the original colony. However, Tents 37, 38, 47, 51, 53, and 54 are at the fringes of the colony and their exact placement must be viewed with caution. Archaeologists augered some of the identified tent locations, but this did not reveal conclusive evidence. If there was no

cellar, or the augering missed the cellar, then test excavations would be most likely to determine whether a tent was in fact present or not.

b) Remote Sensing

Historical documentation indicates that a number of the tents had cellars or pits beneath them. The colonists used many of these pits as trash pits, during the clean up after the fire and massacre. Throughout the occupation of the tent colony, strikers used these pits as storage, protection, and additional living space. Given these facts, the pits contain a large quantity of various artifacts ranging from bed frames to buttons. During the 1998 and 2002 field seasons, we attempted to identify these deep features using remote sensing techniques, Ground Penetrating Radar (GPR) (1998 and 2002), a Cesium (1998) and Proton magnetometer (2000 and 2001).

In 1998, Dr. Larry Conyers of the University of Denver surveyed a 50m square block of the tent colony using the GPR and magnetometer. The southwest corner of the block was at N560/E560. While both remote sensing methods picked up variations in the soil, Dr. Conyers reported that these did not appear to be significant. There may be too much clay in the soils in this area for these techniques to be useful, although it is also possible that there were simply no deep features in the sampled area.

Besides Dr. Larry Conyers aid with the GPR surveys, we have enlisted the use of magnetometer surveys. Dr. Yao of the Colorado School of Mines conducted a magnetometer survey of the Ludlow tent colony in conjunction with this project. The use of this survey was to identify burned areas or concentrations of metallic items that we assumed would be associated with historic features.

During the 2002 field season, both GPR and magnetometer testing was attempted again. Students of Dr. Larry Conyers from the University of Denver surveyed two areas of the Ludlow Massacre site. We surveyed these blocks using a technique to track hits from the GPR in real time in which possible metal and subsurface anomalies were recorded and examined for patterning. The process worked through one person running the GPR antennae along transects in the blocks. Another individual observed the readings and called out when hits he/she identified possible finds. Other members of the team would mark on the ground approximately where the hit was located with pin flags. These flag and hit positions were mapped. Field supervisors analyzed the maps for concentrations of hits and from that determined possible features under the assumption that high concentration of GPR hits may coincide with actual features. This process allowed for real-time identification of possible features without the wait on lab analysis of GPR data.

The first area investigated was that of the memorial area. We tested this area in order to identify the possible locations of tents and tent cellars. We primarily looked in this area to find the location of a tent that belonged to a Mary Petrucci. She is one of the two survivors of the "Death Pit" in which 11 children and 3 women died. She also was well represented in the archival history of the Colorado Coalfield War. Through her statements in the archival evidence, she states that her tent was in the southwest corner of the site, and was identified as tent "#1" in the union's tent numbering system for the colony. Through finding her tent, we would be able to aid our understanding of the layout of the colony, as well as link a tent and specific material culture to an individual listed in the history of the conflict. In addition to archival direction to the survey, we also

tested in this area in order to test the photo overlay from the 1999 season as well as the photo overlay conducted during the 2002 season. By overlapping different survey techniques, the process of feature identification was refined. After GPR investigation and the identification of possible features, auger testing was used to ground truth the existence of features.

The second area tested was that in the field portion of the site. It was an 85m by 30m east-west transect with a southwest corner location of 530N 530E on the site grid. Again, the goal was the detection of features such as tent outlines, tent cellars, and streets or pathways within the colony. We did not have any specific archival research directing our positioning in this area. Field supervisors judgmentally chose to center research into this area to cover far east areas covered in the 1999 photo overlay. Also with intensive surface excavation conducted to the west area of the site at Locus 13 for two consecutive seasons (2000 and 2001), there had been limited research in the south end of the site. Field crew and Dr. Conyers students conducted tracking of GPR hits, with mapping analysis following. Auger testing and surface unit excavation worked to ground truth the identification of feature identification.

Also during the 2002 field season, we applied magnetometer survey to the site for feature identification. Mona Charles of Fort Lewis College conducted the survey using a gradient magnetometer. We centered our survey area to two blocks outside the monument area. The first was an overlap of the 2002 GPR survey already discussed. The second area was a 20m wide north-south transect to the north of the first block.

For the first block, our purposes for research were the same as for the first GPR survey block of the 2002 field season. Since magnetometer centers on variations in magnetic fields often due to intense heat or metal, we assumed that the effects of the massacre through the fire, and the clean up following the massacre would create features readily identified through magnetometer testing. Also with overlapping GPR, photo overlay, and magnetometer, feature identification could be more accurate with correction of errors such as parallax. The variation of the size and placement of the survey block is due to Mona Charles's specific methods. She runs transects within 20m x 20m blocks. As the site grid is based on 30m grid squares, the blocks for the magnetometer were plotted using measuring tapes. The difference in size led to deviation in coverage between the GPR and magnetometer survey, although most of the same area was covered.

We positioned the second block to cover areas not previously surveyed. The overlapping of the photo overlay, GPR, and magnetometer was the primary goal of the 2002 surveys, but as the memorial area of the site is surrounded by metal fencing and is sided by a railroad track running alongside the west side of the site, contamination of the magnetometer readings was a concern. We repositioned the survey block judgmentally to a section that had not been covered through previous surveys or excavations. The block's transect covered a north-south area at the north end of the first colony. We defined features discovered in this area as identifying the normal tent outlines and cellars, but also the boundaries between the first and second tent colonies. It would help to determine if there were any features such as privies in the area on the fringe of the colony, and with which colony feature #1 (first tent identified) is associated. For both blocks, any possible features identified through magnetometer were ground truthed using hand-augering.

Remote sensing has provided a basis for survey in this project due to the unique nature of the features present on the Ludlow tent Colony site. The ephemeral features are not readily available through pedestrian survey or test pits. Test pits may have proven damaging to the indistinct nature of the features such as tent outlines. Remote sensing provided non-invasive investigations of the site that allowed for varying coverage into areas of the site without damage and the correction of different techniques. It also permitted an initial understanding of the layout of the colony that led future testing and excavation.

c) Hand-auger Regime

Surveys such as the photographic overlay and remote sensing identified possible features. We developed a program of initial ground truthing through hand augering. Each year field crews conducted a regime of hand augering. A hand auger was employed with a 6-inch bucket. Each auger test pit was cored to a depth of approximately two meters, or sterile soil (which generally appeared at around two meters). The dirt from each bucket was screened through a ¼-inch screen and replaced after the auger hole was completed. Each hole was mapped and recorded if it was successful. During the 2001 and 2002 field seasons, each hole was mapped and recorded regardless of success. Identification of cultural material, such as artifacts, ash, coal inclusions, or rust, determined success. Besides just the noting of success, field notes recorded any depositional patterns detectable that might suggest possible feature identification.

The positioning of auger tests followed both judgmental and systemic sampling strategies. The areas surveyed through photo overlays and remote sensing initially defined the blocks subject to remote sensing. Within these blocks, we employed a systemic sampling strategy placing tests at increments of approximately 2m. During the 2001 season, influenced by the photo overlay and testimonial sources from the United States Commission on Industrial relations, archaeologists attempted to identify the location of Mary Petrucci's tent. She provided an account to the Commission with a basic description of her tent and its possible location. We presumed that the location of her tent is in an area now fenced in by the memorial. Archaeologists based this location on her testimony that she was close to tent no. 58 or what came to be known as the Death Pit. The project matched The Death Pit, which is now marked and memorialized at the Ludlow Memorial, with the photographic overlay during the 1999 season. With the linking of the testimonial evidence and the photographic overlay, archaeologists made a basic assumption of the position of Mary Petrucci's tent. Hand auguring occurred in an attempt to identify the location of the tent in an area between 500N/450E and 500N/460E. There were a total of 33 auger hole tests made in the area. The crew placed auger probes at 2m distances along each line, but offset the probes from the previous line by 1.4 m initially. However, as testing proceeded the crew made further probes filling in gaps. The systemic placement of these tests allowed for an identification of possible feature boundaries before more intensive test excavation.

A program of judgmental hand-augering based on surface indications such as artifact scatters, vegetation changes, and depressions was employed each year. This process of judgmental survey was intensified during the 2002 field season, due to a drought in the region. The drought led to little vegetation; the limited vegetation coincided with possible tent locations due to rectangular shapes and with previously

excavated features. Testing in these areas was not done with a systemic strategy, but entirely judgmental, with one to three tests placed to simply confirm or reject the identification of possible features. Project directors used hand-auger testing as initial feature identification, more intensive investigation was conducted through test excavation.

d) Test Excavations

Unit excavations facilitated the ground truthing of survey techniques, confirming feature boundaries identified through hand augering, and in the location of features. Unit excavations were in the form of 1m square units. Units were hand-excavated by natural stratigraphy. Generally, we excavated a stratum, especially natural strata, by 10cm arbitrary levels if it was more than 10cm thick. If the stratum was obviously fill, disturbed, or appeared to be demolition debris, and less than 10 cm thick, then it was taken out in one level. All excavated soil was screened through ¼" screens.

The archaeologists recorded each stratum (or level within each stratum) with a standard Provenience Form. Generally, at least one representative wall was drawn from each unit and feature. Large numbers of excavation units with identical stratigraphy in area or block excavations did not require individual unit profiles.

Field Crews bagged artifacts by provenience in archival plastic ziplock bags. Metal, ceramics, glass, leather, piece-plotted, and delicate artifacts were bagged separately. Each separate bag was marked with complete provenience information and a provenience tag with the same information was placed inside.

The positioning of units was judgmental. The ground truthing of survey techniques determined the general area in which we placed test units. For example, Locus 13 in the east portion of the Ludlow tent colony site used test units to determine the photo overlay's success in detecting features. Archaeologists also used test units to identify features without the use of other survey techniques. The positioning of these units was conducted judgmentally. Previous excavations and feature identification led field supervisors to determine the basic layout of the colony, and they placed these test units according to the assumed orientation of the colony in order to identify other features and to refine the layout of the colony.

Archaeologists defined features through the presence of coal, coal slag, ash, artifacts, and other culturally developed intrusions. Although patterns were not usually apparent in a single unit, excavators did connect units to uncover large areas of the historic surface. The result was the ability to follow inclusions and interpret patterns, as with the identification of tents in Locus 1. Initially features were uncovered for primary discovery followed by extensive excavation in order to identify possible boundaries for features such as tent cellars. We identified boundaries through the patterns of cultural inclusions as typified through soil color and texture, meeting with natural sterile areas.

2. Feature Testing

Survey and test units initially identified possible features with excavation used to further identify the existence, identity, and purpose of features. Archaeologists used test units to discern the possible boundaries of features from the surface. These primary boundaries directed the development of excavation strategies. Size and shape of features

influenced the type of testing used to excavate features. Primary types of features were, tent outlines, tent cellars, and privies.

The excavation of test units aided the discovery of tent outlines and privies. Test units consisted of 1m square units excavated vertically according to stratum. Archaeologists defined each stratum through uniqueness in color, texture, and inclusions. We recorded and mapped information on the stratum at the completion of its excavation. Excavation was conducted using hand trowels to limit the displacement of artifacts. We recorded artifacts in situ to recognize possible sub features. If strata were deeper than 10 cm, an arbitrary level was defined. This allowed the recording of specific contexts throughout the stratum. Test units were placed adjoining to identify broad patterns linked to features. Test units allowed for basic identification of tent outlines as the shallow and ephemeral nature of the outlines could be easily lost if systematic uncovering of the historic surface was not conducted. Test pits helped in the excavation of privies or trash pits such as Feature 70, the can pit, in that they allowed for systematic excavation of the feature identifying depositional events and in identifying boundaries to ephemeral features such as a trash pit.

Tent cellars required an alternate excavation than tent outlines and trash pits due to their vertical size and boundaries. Tent cellars as constructed by different individuals in the colony had differing designs. Function, as either storage or living space, also determined the size and shape of the cellar (Feature 73 and 74). The surface boundaries identified through test units provided guidelines for the boundaries of tent cellars, but did not reflect actual boundaries for the entire depth of the feature. To help in the recognition of boundaries for the entire feature, as well as to collect contextual information for features such as tent cellars and other deep features, these types of features were bisected, and excavated in halves to keep track of artifact and sub feature locations and to provide a stratigraphic profile for the feature. After crews excavated and mapped the first half, they removed the second half. In both halves, stratigraphic layers determined the vertical contextual boundaries of recorded excavation. Each stratum was excavated and recorded separately. Feature 74, a large tent cellar was bisected in both north-south and east-west directions to help in the recording of depositional and artifactual contexts. Archaeologists recorded sub features and artifacts as being located in a specific quadrant such a northeast. The eastern quadrants were excavated in the 2000 season with the western quadrants excavated in the 2001 field season. We profiled the feature's stratigraphy at the end of excavating the appropriate bisection. The primary purpose for feature bisection was for recording of contextual and deposition information. Unit excavation could not provide similar data with linking overall patterns for such features.

3. Midden Sampling

Midden sampling has been a continued process for the project. Strikers placed the Ludlow colony's midden or trash dump north of the site alongside of an arroyo. This arroyo has threatened the context of the midden deposits. Initial testing of 1997 followed a process of positioning test units separate from each other to allow for an overall sample of different parts of the midden. Succeeding field seasons have used alignment of test units into trench lines and occasionally adjoining units to uncover larger sections of the midden. The positioning of these test units and trenches has allows been determined through judgmental sampling.

Sampling has worked on the assumption that the midden acted as a general trash dump for the entire colony. As such, there may have been horizontal and vertical stratigraphy based on occurrences of deposition. The limited occupation limits the archaeologist's ability in discerning the differences in occurrences of depositions. Archaeologists used sampling and excavation methods to identify possible changes in depositional activity as well as to identify the different material goods used across the colony, providing information on consumption habits on a community scale. Units were placed primarily according to surface scatters that suggested depositional activity and variability in artifact and material types. We tested areas under threat from erosion due to the arroyo to gain information that archaeologists deemed to be lost in the near future.

Excavation of test units occurred in the same manner as all test units for the project. Units were 1m by 1m in size with a mapping coordinate designated by the southwest corner. Elevation datums originated at corners that would be central to multiple units so that datums would be as uniform as possible. Field crews hand troweled units and screened excavated material through ¼" screens. Units were excavated stratigraphically. We ended excavation of the units when strata were sterile of cultural material and inclusions. To gain an overall view of the stratigraphy in the middens, we did not map or profile units individually, but we did record profiles of trenches to recognize patterns in midden deposition.

4. Berwind

Archaeologists initiated research at the site of Berwind during the 1997 field season. Our first objective at Berwind was to survey and map the entire town. The primary goals were to understand the site as a whole before exploring specific area in greater detail, and to link areas of the town to different historic periods in the town. In addition, as we explored and documented the community we wanted to identify areas of the town that dated before the strike of (1890-1914), and areas of town that dated after the strike (1915-1931). This is important because many of the questions that we addressed dealt with the changes that occurred in coal mining communities as a result of the strike and the Ludlow Massacre.

We conducted testing of the site at the conclusion of the 1997 season through unit testing and surface collection. Field crews initially conducted pedestrian survey with surface collection and artifact counts. This process allowed for a preliminary identification of possible features and the density of possible activities in areas of the town. The dating of collected artifacts also allowed for a basic dating of areas of the town. During the surface collection phase of research, we discovered myriad artifacts and features. The residue of everyday life was littered all over the surface. Our next question was - what lies below the surface? Were there discrete layers that corresponded to certain periods in the areas of town, which were occupied both before and after the strike? Were there buried features? Had the privies been sealed with intact deposits? Had the yard areas been significantly impacted when the town was destroyed in 1931?

Crews tested areas of the site to recognize the archaeological potential of several areas of the site for future research and to determine if intact stratigraphy existed below the surface. We excavated one meter by one meter test units. We chose four areas of town that represented different time periods, ethnic affiliations, and class associations. In each of these areas, we excavated at least one, but as many as three test units.

Most of the earlier periods of the town had been destroyed or replaced during the period of the Rockefeller plan (1915-1930). There were two areas with possible preservation of the period dating between 1900 and 1915; one was privately owned during the time of excavation and closed to research and the second was a pre-strike neighborhood (Area K). Test unit excavation confirmed this linkage to the earlier period through artifact dating.

Archaeologists used the Frijole Hill neighborhood as the sample area for the post Coalfield War (1913-1914) period. This time period was established through the standing architecture styles and artifacts reflecting a time period of 1915-1930. The camp seems to have expanded during this later period running north into the camp of Tabasco. Frijole Hill's position near the north end of town coincides with this trend.

The marking of the individual contexts for both neighborhoods directed the mapping of the site. Mapping crews placed separate datums at both neighborhoods. The large distance between the two neighborhoods required the individual datums with separate grids. Areas were mapped using an EDM and vertical and horizontal positioning of points recorded. Areas mapped include natural features such as streams, and elevation changes, modern infrastructural features such as roads, terraces, and bridges, and cultural features such as foundations, fence posts, ovens, and privies. Archaeological test units were mapped.

Test excavation occurred at both neighborhoods during the following two field seasons (1998 and 1999). Test units for both areas consisted of 1m square units placed adjacently to follow strata. We excavated units stratigraphically. Soil types were discerned by alphabetic designations (A, B, C ...), while subtle changes in strata were defined through Roman numerals (AI, AII, AIII ...) (Wood 2002: 412). We excavated seven units in the pre-strike neighborhood in a "J" formation. Frijole Hill contained 20 test units in two square blocks. Privies were also tested in both areas. Through unit excavation, we identified privies in the pre-strike neighborhood. We then bisected and excavated the privies by strata. Privies on Frijole Hill were lined with concrete and as such were more readily recognized than earlier styles. These privies were tested using bores to identify artifact types and strata changes. We conducted surface collection on Frijole Hill to accumulate data on an area under erosion north of a domestic area.

5. *Archival Research*

Although primary research interests were of material culture identified through survey and excavation, archival investigations aided in the developing the questions asked in the research as well as identifying the data to answer the questions asked. Project archaeologists conducted research into archival sources, such as census records (Wood 2002), newspapers, company publications, governmental hearings, and oral histories. Secondary accounts such as written histories of specific interest, such as books and articles directly dealing with the Colorado Coalfield War of 1913-14 (Beshor 1957; McGovern and Guttridge 1972; Foner 1980; Gitelman 1988; Long 1985; 1989; 1991) and daily life in the southern Colorado Coalfields (Allen 1966; Duetsch 1987; Clyne 1999), and sources covering general mining history (Smith 1992; Laslett 1996).

The research into archival and documentary sources covered to main goals. First, they provided historical background to the region for both extreme events such as strikes, but also daily life and cultural practices. Second, they provided information that led to understanding of the archaeological record, such as possible positioning and layout of

structures in both Berwind and the Ludlow tent colony. Sources also allowed a background to the material culture possibly present on the site and described how individuals might have used these materials.

The primary method of archival research was the reading of archival and historical sources in attempts to find a general background from which the archaeology could work. More specific research was geared at finding specific references to events and people and how these people related to the archaeological record, for example the identification of Mary Petrucci through secondary and primary sources revealed her importance in the strike of 1913-1914 (USCIR 1916: 8196; Long 1985). Some references specifically detail the position of her tent when she lived in the Ludlow tent colony. From this information, archaeologists could work to plot the position of her tent and build from that tent through excavation and survey to develop an understanding of the layout of the colony.

Archaeologists linked to the project, but working on their own specific research directed at Ludlow or Berwind added to the historical knowledge of the sites. These different projects had differing interest towards the archaeology of the project, but did add to the basic understanding of the site through subjects such as gender (Wood 2002), memory (Walker), site methodology (Horn), landscape archaeology (Jacobson 2001), foodways (Grey, Horn), and ethnicity (Reckner). Each of these studies required a look into archival and documentary sources, but each in their own way. Jacobson (2001) specifically looked at references found in government hearings such as the United States Commission for Industrial Relations (USCIR 1916) to identify specific references to space found in the hearings. These references included remarks on features such tent construction methods, feature locations, to layout of the camps. From these references as tied to the archaeological research conducted by the Colorado Coalfield War Archaeological Project, a cognitive understanding of spatial relationships in the camp was identified.

The archaeologists compiled the knowledge for their own research into the overall documentary and archival study required for this project. Archaeologists for this project attempted to equalize the value that archaeological and text based data had on the basic fulfillment of the research design.

6. Mapping

Archaeologists conducted mapping of the Ludlow tent colony site through the establishing of an overlying grid. A datum was placed at the south center part of the site and given the grid designation of 500N/500E/100 meters above datum. From this datum, we placed a grid based on 30m squares across the lot owned by the United Mine Workers. Field Crews placed wooden steaks at intersections of each 30m square. This allowed easier identification of features and test units across the site. It also allowed for mapping from these steaks using hand and long tapes relating finds to the overall site map. Mapping the site as a whole was conducted using an electronic distance measurer (EDM) for the seasons of 1996-2001. During the 2002 field season, we made use of a Sokkia total station. Unit nails were positioned using either the EDM or the total station to assure accurate measuring of unit locations and context of artifacts and features in the units. Crewmembers also recorded the positions of natural features such as the arroyo,

the boundaries of the site, and other cultural and natural features. All mapping data was recorded in field logs for latter processing.

We recorded positional data into an AutoCAD map. The software used as AutoCAD LT. This allowed the basic recording of features as well as excavation data in an analytical format. Dan Brockman initiated the mapping of the Ludlow tent colony site recording features and excavation units through the 1999 field season. Michael Jacobson continued the mapping through the finalization of the project. AutoCAD allowed for the separation of themes such as each field season's excavations, different survey blocks, and non-Ludlow features into separate discernable features.

Provenience control consisted of five levels of designation: Site, Locus, Unit, Feature, and Stratum/Level. The appropriate provenience information was recorded on all documentation and bags.

Site: The two sites we worked at during the project were Ludlow and Berwind. During the 2001 and 2002 seasons, we only worked at Ludlow. Each site had its own grid and elevation datum. Site names and numbers were written on every document and bag.

Locus: The project archaeologists designated loci within sites, such as the neighborhoods at Berwind and the work areas of Ludlow. At Berwind, loci were designated with capital letters, A-Z, and, as necessary, subdivisions within a locus were designated with numbers; e.g., A.1, A.2, etc. At Ludlow, loci were differentiate through numbers; e.g., 1, 2, etc.

Unit: The basic unit of provenience control was the one-meter square. Within each site, each square was designated by the coordinates of its southwest corner (e.g., N100/E100; the southwest corner at North 100 meters and East 100 meters from the Site Datum).

Feature: Features were designated with a **Feature Number**. The numbers ran continuously within each site and from the previous year. We numbered features within features as sub-features, getting a decimal designation, e.g., the larger feature might be 10, while the smaller features within it would be 10.1, 10.2, and so on.

Stratum and Level: With the one-meter squares, natural and cultural strata were designated with a **Stratum Letter**. If arbitrary levels were excavated within strata, they were designated with a **Level Number**. The surface was designated by a "S" and rootmat by "R".

7. *Lab Methods*

All completed bags were collected from excavators at the end of the workday. Once in the field lab, the bags were checked, washed or dry brushed, inventoried, and re-bagged for cataloguing and analysis.

When fieldwork was completed, the artifacts were identified and entered in a computerized database. The artifacts were catalogued by a relatively standard system of MATERIAL, GROUP, CLASS, FUNCTION, and WARE. Within each classification field, there were a standardized set of choices. The fields and the applicable artifact codes are given in **Appendix**. Material denotes that which the artifact is composed. GROUP, FUNCTION, CLASS, and FUNCTION are *functional* categories. Sometimes this was straightforward, other times less so. The functional description becomes more specific from Group to Class to Function. For example, a nail might be Group-Architectural, Class-Hardware, and Function-Nail or conversely Group-Clothing, Class-

footwear, and Function-Nail. WARE was a stylistic category. Here we describe the artifact in terms either of formal categories (e.g. blue”), or, as will be more often the case, a set of fairly standard typological categories depending on the kind of artifact.

While these remained constant, the methods associated with them varied slightly year to year. The following sections will outline the methods for each year.

C. Specific Methods Employed During a Specific Year

During our excavations over the years we found it necessary to employ specific methods during a couple of years to address specific research questions that could not be addressed using the previously discussed methods. There are only a few and they are discussed below.

1. Dog Leashes

In 1997, we conducted counts of surface cultural material using one-meter radius "dog leashes" at 10-meter intervals. A "dog leash" is the circular area within which the artifact count is taken. In 1997, this data permitted us to identify the extent of the actual colony and the trash midden at the arroyo. A more detailed analysis of this data conducted in 1998 provided information on the internal structure of the colony. Project analysts input artifact counts originating from the dog leashes into Surfer to determine artifact concentrations for the Ludlow tent colony. The surfer map was imported into the AutoCAD site map to aid in the determination of test excavation locations under the assumption that high artifact concentrations related to feature location.

2. Mechanical Stripping

In 1998, we also removed the rootmat and disturbed soil from a 210 m long by 2 m wide strip using a skid loader. This trench ran from N500/E590 to N710/E 590. After the skid loader had removed the disturbed soil we shovel-scraped the trench to identify features and artifact concentrations. This trench (Locus 5) confirmed that the tent locations were not going to be represented by massive concentrations of charcoal and burned wood as we had initially hoped. One likely burned plank floor was identified, but otherwise potential tent locations were indicated by discolored soil and artifact clusters.

3. Elevation Map

During the 2002 field season, we applied an alternate survey technique to discover possible tent cellars. Archaeologists worked on the assumption that there may be depressions on the surface of the site due to the presence of tent cellars. Using the Sokkia total station, field crew measured points on the site location systematically at increments of every 2m in a block across the site with southwest coordinates of 500N 430E. These measurements specifically looked at the elevation of each point recorded. The elevation measurements were then analyzed using the software program Surfer 8 to map the elevation changes of the site. The resulting map shows a general decrease in elevation from the high point of the site in the southwest area of the site moving north and east. This change is the result of a natural decrease in elevation from the foothills west of the site to the plains east of the site. There was no discernable change in elevation from cultural behavior. There was one crater-like area of abrupt change in elevation; we

have described in project notes and mapping. This feature either was due to cattle ranching as a watering hole or as a reconstructed tent cellar for proposes of a documentary on the Ludlow Massacre. This mapping project gave no definitive identification of tent cellars based on elevation changes. Post occupational disturbances and depositions may have limited the alterations to elevation in the landscapes.

III. ARCHAEOLOGICAL INVESTIGATIONS AT (5LA1829) LUDLOW, 1997-2002 FIELD SEASONS

The following chapter summarizes the archaeological excavations for the six field seasons spent at the site of Ludlow by the Colorado Coalfield War Project. The chapter is broken into three sections. The first discusses the initial field season, 1997, which was a brief exploratory surface analysis survey to determine the site's viability. The second section explains the photographic overlay project and remote sensing projects conducted at the site of Ludlow. Finally, the third offers a summary of the excavation results on the site according to Loci, beginning with the first and ending with the last (1-23).

A. 1997 Surface Analysis

During the 1997 season we conducted counts of surface artifacts across the entire 40 acres owned by the UMWA. The site had been used for cattle grazing in the past and the Project Leaders wanted to test whether the site's integrity had remained sufficiently intact to warrant more in depth archaeological investigations. A small crew went to the site for a couple week period to conduct a surface artifact count survey to get a better understanding of the site and its feasibility.

The counts were collected as one-meter "dog leashes" every 10 meters. This enabled us to identify the boundaries of the colony proper and the midden (*Figure 4*). The alignment of the surface artifacts (*Figure 5*) within the colony strongly suggests that the colony was oriented at an approximate 45° angle to our grid, i.e. towards the intersection of the road and the railroad rather than towards the road. However further excavation is necessary to confirm that this was the overall orientation of the colony. Based on these counts, project leaders determined that the site warranted a more intensive archaeological investigation.

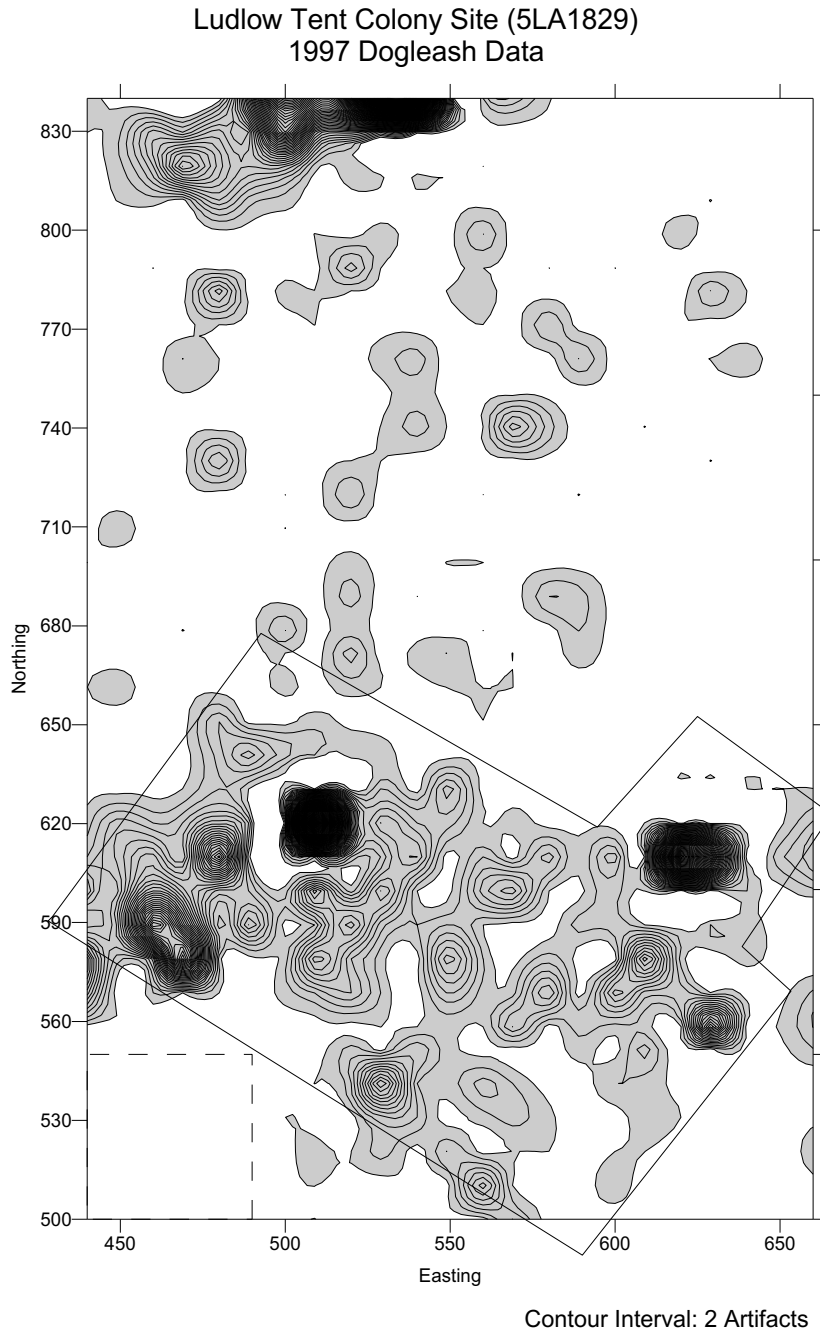


Figure 4: *Surface artifact densities at Ludlow*

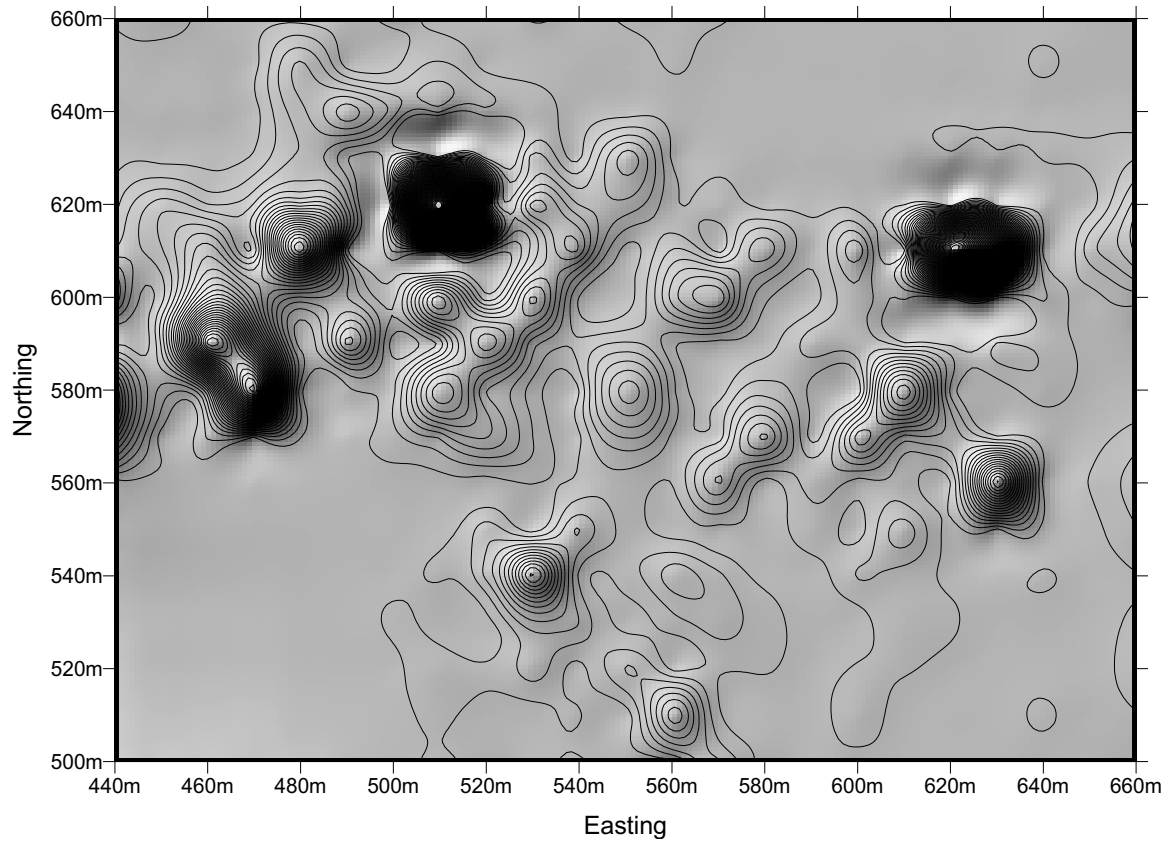


Figure 5: *Surface artifact alignments within the colony area*

Photographic Overlay and Remote Sensing

1. 2002 Photographic Overlay Project

As explained above, in the 2002 field season, we used multiple images taken within the colony and outside the colony at a lower angle, and from various time periods. We believed that in doing so, we could get more precise locations of tents and cellars. We used 8 photographs of the colony taken at different times, both before and after the massacre. The photographs were taken from different vantage points within the camp and displayed different background landscape. By matching the natural features from the present landscape with those in the photographs, we could identify features on the landscape portrayed in the photos. Then we marked possible locations of features. Photographs used will be named by their DPL call numbers. We chose nine photographs to test in the field. (See *Figure 6*—Site Map for field locations). They include: x-60558, x-60354, x-60483, x-60454, x-60472, x-63219, x-60359, x-60468, x-60339. The actual photos and their Denver Public Library photographic records are included in an appendix at the end of this report (*Appendix 1*).

The matching of the landscapes from the photographs to those in the present worked with little complication. However, two photographs (x-60468 and x-60339) with the Black Hills as the landscape backgrounds, were not successfully matched to the present day landscape. The background was not distinct enough to convincingly match the photograph with the landscape from a single vantage point. The photographs that we placed with confidence were located in the monument area. They are: x-60354, x-60483, x-60454, x-60472, and x-63219. Our confidence was based on nearly complete to complete alignment of the background of the photograph with that in the present landscape. These were based on ridgelines that were closer to the site and therefore were more distinct and could be located with more certainty than the ridgelines of the Black Hills.

Photograph x-60354 we located at N511/E482 facing west. The photo depicted Front St. with a building. The photograph appears to be reversed in the print. This is evident when we examined and compared the tent layout and ridgeline. When the slide was flipped over, it matched up great with the ridgeline. We placed pin flags where tents were located according to the image. The furthest west tent would have been Tent #1 or Mary Petrucci's tent and its position fits well with the testimonies.

Photograph x-60483 was taken at N512/E434 facing east. The photograph depicted stove ruins and the camp after it was burned. The scene appears to be west southwest of the monument. The far ridges of the Black Hills are lined up, but the close features are subject to parallax. Test units and GPR should help to ground truth. The Red Cross photo was blocked by the monument and pavilion, and it is questionable how the tent line-up is working.

Photograph x-60454 was located at N508/E435 facing east. The photograph depicts the gymnastic set that was set up in the southwest portion of the camp. It is still in the area

of photos x-60483 and x-63219. The photo lines up close with the other features although there is little ridgeline in the background with which to match it up.

Photograph x-60472 was taken at N505/E435 facing east again. The photo depicts the gymnastic set again from a slightly different angle. This time it matched up great and with both ridgelines. Features flagged from other shot and our four people in the background are of the same scale as the ones in the picture. From this photograph we were able to estimate where the gymnastic set was on the site, southwest of the monument and south southwest of the death pit.

Photograph x-63219 was taken from N504/E431 facing east. This photograph depicts men and women of the Red Cross standing in the ruins of the colony just after the massacre. Remains include: bed frames, pots, pans, wash tubs, ovens, barrels, tent frames, and mattress frames. While we could line up the photograph, it was difficult to locate the cellars from the photograph.

We could not ascertain the coordinates for photograph x-60359 facing east/northeast. The photograph turned out to be backwards like x-60354. However after switching sides the negative matched everywhere, no matter the position. We pin flagged tent fronts near Locus 13, however we are not confident about these locations so we did not record them.

Photograph x-60468 facing north also proved impossible to place with certainty. The photograph depicts a well with children standing beside it. The ridge matched up from the photo to read. However, parallax was an issue in that the people didn't match up to buildings and if the wooden structure was the same for the colony it was too far north. For this reason we chose not to use this photograph.

The final photograph, x-60339 facing east, was also difficult to place. The photograph depicts Main Street with tents. This photo has the same problem as the other Main street photo. The Black Hills were not distinct enough to match up.

All in all five of the nine photographs provided additional information on the camp layout using the photographic overlay project. We were disappointed that the photographs of Main Street did not work out. The Black Hills proved to be too far away to provide an accurate point of reference. We were very pleased with the photographs depicting Front Street and the area near the monument.

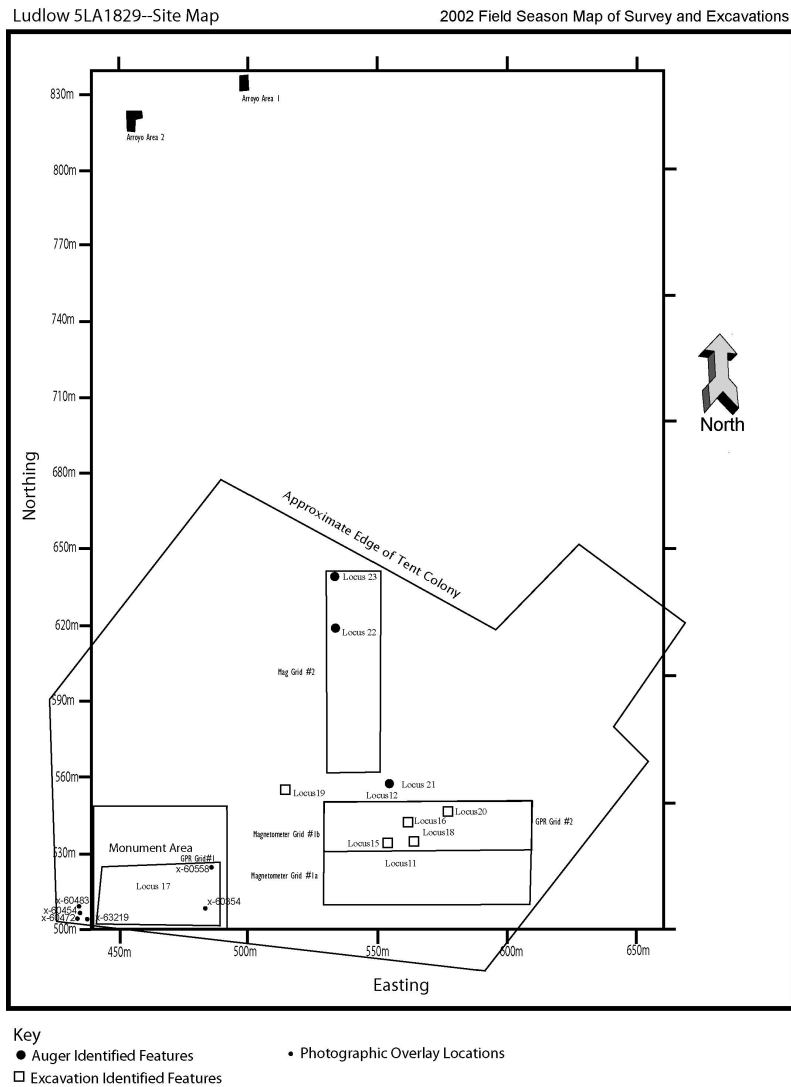


Figure 6: Map showing locations for historic photo overlay.

B. Excavation And Testing by Loci

During the work at Ludlow we tested, excavated, or simply identified 23 areas, designated Loci 1 through 23. These areas were identified through a variety of methods discussed in the Methods section and many were tested through auger probes or excavation. In this section we discuss the loci in numerical order.

1. Locus 1

At Locus 1 we excavated a total of 109m² and succeeded in identifying and defining a tent platform (*Figure 6*). We may also have exposed parts of adjacent tents to the southeast and northwest, and possibly to the north. The excavation at Locus 1 indicates that the tent colony was oriented at an angle to the railroad and section road, being oriented towards their intersection. This is also suggested by data on the distribution of

the surface material gathered in the 1997 field season (see *Figure 5*). The surface distributions show pronounced northeast to southwest alignments.

Stratigraphic discussion

The stratigraphy in Locus 1 was shallow and uncomplicated. There appears to have been minimal deposition or erosion since the colony was abandoned. The main disturbance to this part of the site has been trampling by cattle. In essence, while the original ground surface has remained the same (i.e., at the same elevation), trampling has erased the top 10cm or so of the site. The artifacts are there and possibly in the same approximate horizontal location, but exposing features required removal of the disturbed strata.

We removed the disturbed overburden as two strata; Stratum R being the rootmat, and Stratum A, the disturbed sediment below the rootmat. Stratum B was undisturbed natural subsoil. It was at the interface of Stratum A and Stratum B that we encountered intact features from the tent colony. After satisfying ourselves that Stratum B was in fact culturally sterile by excavating into it in several units, it marked the bottom of our excavations in the other units. We removed Strata R and A with shovels and trowels, and then trowelled Stratum B to identify and define features. We also tested several of the features that we exposed.

Stratum R, the rootmat, consisted of about 1 to 5 cm of very dark grayish brown (10YR 3/2) to dark brown (10YR 3/3) silty loam mixed with coal and clinker. It was distinguished from Stratum A simply on the basis of the presence of the rootmat. We recovered 1,123 artifacts from Stratum R, the bulk of this being glass sherds (n=421), mainly bottle glass, along with some flat glass (n=58). The rest of the material included ceramics (n=185), can fragments (n=109), nails (n=110), wire (n=80) and clothing items (n=32).

Stratum A was also a very dark grayish brown (10YR 3/2) to dark brown (10YR 3/3) silty loam mixed with coal and clinker. This stratum ranged from 2cm to 6cm in thickness and overlay the natural subsoil (Stratum B) and cultural features from the tent colony. It yielded 2,393 artifacts. Glass sherds (n=590) were 25% of the assemblage. Bone faunal debris (n=349) was the next largest artifact class. The remaining artifacts from Stratum A included ceramics and cans (n=261 and 132 respectively), clothing and personal items (n=94), and ammunition (nine shotgun shells, three bullets, and five cartridges).

Stratum B was the natural subsoil, a very dark grayish brown (10YR3/2) silty clay loam.

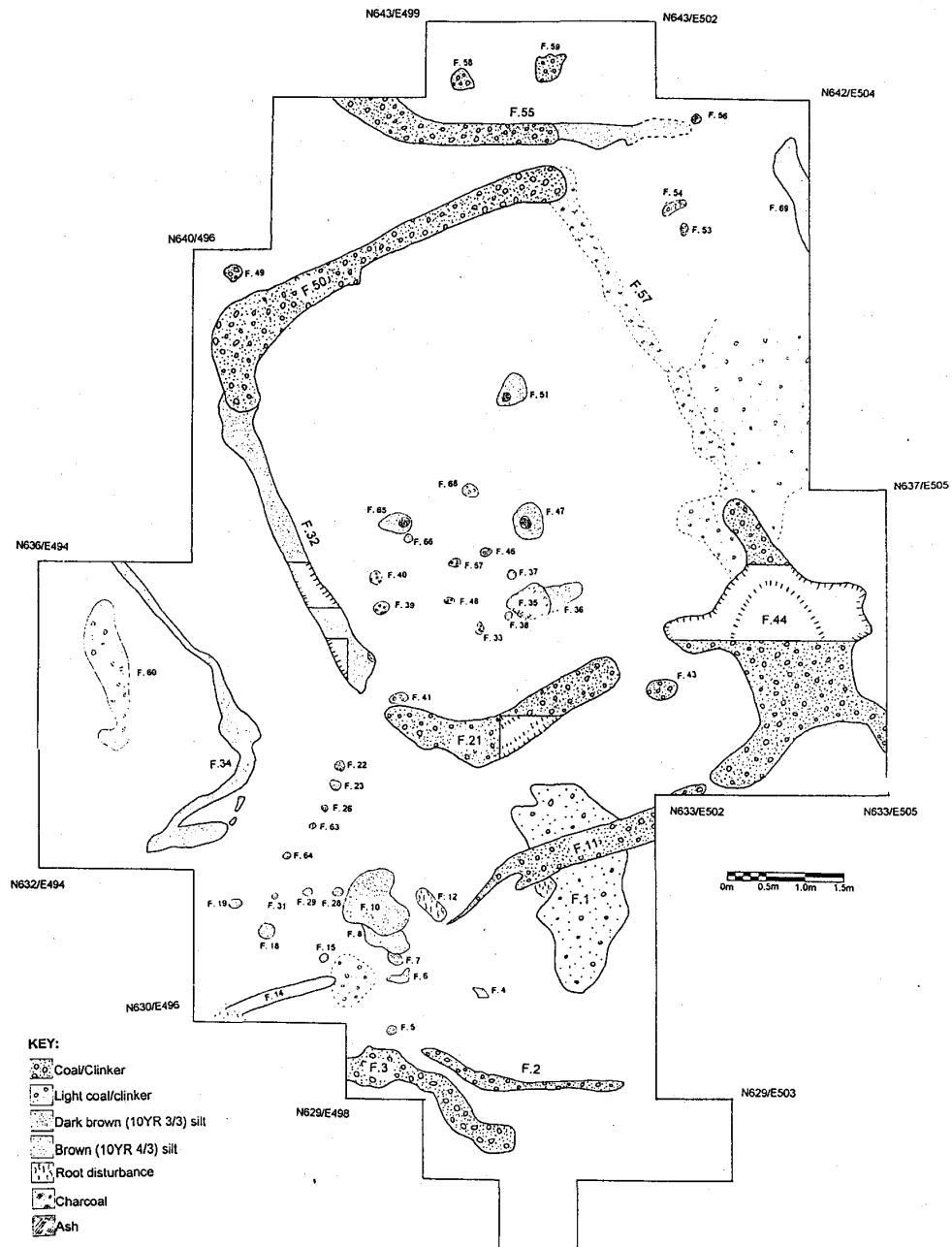


Figure 7: Map of Locus 1

Feature Discussion

The tent platform we identified in Locus 1 was defined by two coal and clinker filled ditches to the northeast and southwest (Features 50, and 21 and 44 respectively), a shallow silt-filled ditch to the southwest (Feature 32), and a linear dark charcoal-flecked stain to the northeast (Feature 57). We excavated a portion of Feature 21 in Unit N633/E500 and Feature 44 in Units N635/E502-504. The stratigraphy in both cases consisted of a sediment of silty loam, mixed with coal and clinker, overlain by a dense coal and clinker layer. The ditch (F.21) was about 12 cm deep, straight-sided and deliberately constructed. Photographs of the tent colony show shallow ditches around some of the tents and also that many of the tents had small berms around the edges, presumably to weigh down the tents and also to provide insulation.

We also sampled Feature 32 in Units N634/E632 and N635/E632. Feature 32 was shallow (approximately 6cm deep) with an irregular shape. This feature may represent just a shallower silted-in drainage ditch or possibly a drip-line from water coming off the side of the tent. In the latter case, however, we would expect to find a drip-line to the northeast as well, which was not the case. Feature 57 was a linear concentration of charcoal flecks, along with some coal. It may represent a wooden feature, such as a sill or planking that burned in situ. These four features (21, 32, 50, and 57) defined a tent with a maximum size of about 14ft and 16ft, assuming that Features 21, 32, and 50 lay outside the tent, and Feature 57 marked its northeastern edge.

The 16 features inside the tent platform give little idea as to the construction of the tent. These features consist of three posthole/post mold features (Features 47, 51, and 65), seven small stake holes (Features 33, 37, 38, 46, 48, 67, and 66), four larger stake holes (Features 39, 40, 41, and 68), and ash-filled feature, probably the remains of a hearth (Features 35 and 36). Most of these features had coal and clinker in the fill, suggesting that the posts had been removed rather than decaying in place. It is likely that the tent had been repaired and upgraded during its occupation. For example, most, if not all, of the tents had wooden floors installed at some point. One interesting set of features is the ash-pit (F.35) and the circle of stake holes that adjoin it to the west (F. 33, 37, 38, 46, 48, and 67). This circle is approximately 1 meter in diameter. This complex may be the remains of a temporary shelter or windbreak and fire from the days before the tents were set up at Ludlow or some structure related to cooking within the tent.

Additional features to the north (F.55), northeast (F.69), and southwest (F. 34) suggest the presence of other structures in those directions. Feature 55 is a coal and clinker filled ditch, while Features 69 and 34 are linear stains of dark brown (10YR 3/3) silt loam. There also appear to be two intersecting rows of stake holes in the southwestern part of the excavation block; one running east-west (Features 28, 29, 31 and 19) and the other running roughly northeast-southwest (Features 22, 23, 26, 63, 64, 31, and 18).

2. Locus 2

This was the location of a large anomaly detected during the Ground Penetrating Radar survey conducted during the 1997 field season. We placed an east-west trench of three units across the center of the anomaly (Units N669/E512-514). The area of the GPR anomaly was obvious on the surface as a dense scatter of clinker. Excavation revealed a lens of clinker and ash 4-8 cm below the surface, 2-10cm thick, overlying the natural

subsoil. We interpret Locus 2 as an ash dump. The GPR appears to have been detecting the ash lens.

Stratigraphic Discussion

The test excavations at Locus 2 contained five stratigraphic contexts (*Figure 8*); the rootmat (Stratum R), a layer of silting mixed with coal and clinker (Stratum A), a layer of coal and clinker (Stratum B), and a two layers of sediment (Strata C and D) overlying the natural subsoil. The rootmat (Stratum R) was a layer of very dark grayish brown (10YR 3/2) silt loam. It contained 170 artifacts, mainly white refined earthenware (n=102) and unidentifiable glass sherds (n=35). Other artifacts from this stratum included part of a jackknife, a porcelain doll's arm, a purple glass gem, an iron button, and a wheel from a toy vehicle.

Stratum A was also a very dark grayish brown (10YR 3/2) silt loam, heavily mixed with coal and clinker. It contained 1,145 artifacts, largely tin can fragments (n=748), refined earthenware sherds (n=170), and bottle glass (n=75). The other artifacts included another porcelain doll's arm, nails (n=17), and five fragments of a shell button.

Stratum B was a dense layer of clinker and coal mixed with a very dark grayish brown (10Y 3/2) silt loam. We recovered 116 artifacts from Stratum B, most of which were charred wood fragments (n=78), bone (n=17), and unidentifiable iron (n=16). The remaining artifacts consisted of bottle and jar glass (n=4), unidentifiable glass (n=3), and one sherd each of refined earthenware and stoneware.

Stratum C was a layer of very dark grayish brown (10YR 3/2) silty clay with moderate amounts of coal and clinker. It yielded 37 artifacts; bottle glass (n=12), unidentifiable iron (n=9) and glass (n=6), porcelain sherds (n=3), a piece of refined white earthenware, a piece of shoe leather, and charred wood (n=3). **Stratum D** overlay the natural subsoil. It was a thin band of very dark grayish brown (10YR 3/2) silt loam. It contained 86 artifacts; bottle glass (n=64), unidentifiable glass (n=14), and eight fragments of unidentifiable iron.

3. *Locus 3*

Locus 3 was a dense surface scatter of artifacts east of the 1997 archaeological trench excavation. We opened a 2m² block excavation (Units N618-619/E511-512) in the approximate center of the scatter to see if there were subsurface features associated with it. The only feature (F.26) we encountered in this block was a shallow depression (approximately 2-3 cm deep) in the subsoil, filled with dark grayish brown silt loam and coal clinker. There was also an alignment of nails running north-south that may indicate a structure in this location.

Within the 4 units we excavated there were 1,767 artifacts on the surface, primarily glass (n=954), ceramics (n=765), and nails (n=30). These were 99% of the surface material.

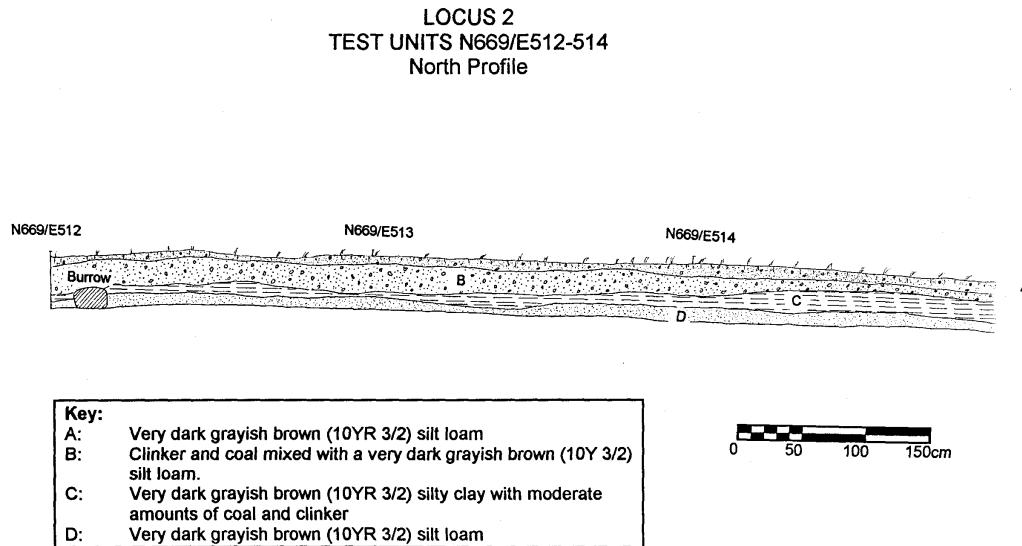


Figure 8: *Locus 2, North wall profile*

Stratigraphic Discussion

The stratigraphy here was the same as Locus 1, several centimeters of trampled sediment (Strata R and A) over the natural subsoil (Stratum B). **Stratum R** was 1-2 cm thick and was a very dark grayish brown (10YR 3/2-3/3) silty loam mixed with coal and clinker. Stratum R contained 3,397 artifacts, almost entirely glass (n=1,852) and ceramic sherds (n=1,386), which together accounted for 95% of the assemblage. Nails (n=80) were the next largest artifact class.

Stratum A was about 2 to 5cm thick, and a very dark grayish brown (10YR 3/2 to 3/3) silt loam. It yielded 2,484 artifacts, mainly glass (n=1,222) and ceramics (n=1,032), and nails (n=62). These three artifacts accounted for 93% of the Stratum A assemblage. The remaining artifacts included five fragments of a single sided recording disc, possibly a graphophone disc.

Feature Discussion

Feature 26 was a shallow depression (approximately 2-3 cm deep) in the subsoil, filled with dark grayish brown silt loam and coal clinker. It contained 46 artifacts, primarily bone (n=24) and glass (n=10). This feature contained 40% of the bone recovered from Locus 3.

4. Locus 4

We opened Locus 4 to test the southeastern part of the colony, placing a 2m² block over an artifact scatter (Units N562-563/E585-586). This block was expanded with a unit at N564/E586 to better define a possible feature. We did not find any cultural features in Locus 4.

Stratigraphic Discussion

The stratigraphy here was a little different than that from the rest of Ludlow, possibly because the area may have been graded to train horses. The stratigraphy consisted of Stratum R, 4 to 6 cm of very dark grayish brown (10YR 3/2) silty loam rootmat overlying an additional 3 to 8 cm of very dark grayish brown (10YR 3/2) silt loam (Stratum A). Stratum A overlay Strata B and C. Stratum C was approximately 6 cm of very dark grayish brown (10YR 3/2) silty clay loam. Stratum B was a lighter (2.5Y 4/2--dark grayish brown) patch of silty clay loam within Stratum C. It was removed separately but did not appear to represent a cultural feature. The subsoil, Stratum D, was a more compact, very dark grayish brown (10YR 3/2) silty clay.

The rootmat, **Stratum R**, contained 29 artifacts—17 sherds of ceramic, six glass sherds, three nails, a suspender part, and two unidentifiable iron scraps. Stratum A contained 95 artifacts; including 50 ceramics, 26 glass, a piece of bone, five nails, and six can fragments. **Stratum A** yielded 95 artifacts—50 ceramics, 26 glass, 18 unidentifiable iron fragments, and a bone fragment. **Stratum B** contained only three artifacts, a nail, a piece of a copper alloy object, and a piece of wire. **Stratum C** had 82 artifacts; mainly unidentifiable iron fragments (n=49) and can fragments (n=20), along with five ceramics, four bits of wood, a cartridge, a possible clock cog, and two pieces of bone

5. *Locus 5*

Locus 5 was a 210m long trench 2-3m wide running from N500/E590 to N710/E590. We excavated this trench with a skip-loader (or landscaping tractor) to remove the rootmat and disturbed stratum and get a section through the colony. After the skip-loader removed the disturbed strata, archaeologists scraped down the natural subsoil to expose and define features and artifact scatters. This exposed a number of dark stains within the area of the tent colony, which suggests that they are related to the strike occupation. One area of charcoal staining was also exposed which is most probably the remains of a burned wooden floor. This trench confirmed our findings from Locus 1 that the tent locations were not generally marked by dense concentrations of charcoal and burned wood, which was our initial expectation. The tent locations are mainly marked by excavated features such as ditches and postholes.

6. *Locus 6*

At Locus 6 we located over a meter of cultural deposits when augering a shallow depression evident on the surface. Initially, we placed two units (N504-505/E533) over the auger test to identify the feature. The cultural deposits in the auger probe were over 1.54m deep. We labeled this Feature 70. This feature was excavated over two field seasons 1998 and 1999. Project archaeologist began excavating this feature in 1998 and reached a depth of about 60 meters deep. Due to time pressure, project leaders then decided to excavate only in the northern unit (N505/E533). At approximately 1.10m below surface, project leaders halted the excavation of the unit and excavated only the southwest quadrant of the unit. This was excavated 1.54m below surface before discontinuing excavation. Artifacts were still evident at the bottom of the excavation, however, excavations were halted for the season due to time constraints and safety concerns.

In 1999 archaeologists stripped the overburden from the feature in a 16 m² area in order to expose its full extent (*Figure 9*). Feature 70 was irregular in shape and measured

approximately 2.5m x 3.5m. Archaeologists stepped back the area and continued the test units from the previous year to determine the depth and stratigraphy of the feature, finally reaching the bottom of the feature at a depth of 2.5m below the surface.

Stratigraphic Discussion

There were 12 main cultural deposits within the feature (*Figure 10*) after the feature was initially dug out ca. 1913. The stratigraphy of the fill within is dominated by a thick layer of tin cans, along with bottles and other artifacts (*Figure 10*). This layer appears to slope down from the north, suggesting that there had been some slumping or silting before they were dumped into the hole. The trash deposit was overlain by about 6-8 centimeters of laminated silt (Strata F and G), indicating that there was a period of natural silting after the trash had been deposited.

The top strata (Strata R-D) appear to be fill layers, with R and A being disturbed by cattle. Fewer artifacts were recovered from these strata, but among them was the wire frame and stand for a wreath, recovered from Stratum C. The wreath had been deposited in the pit after the trash had been buried by silting. The wreath may have been placed by the strikers after the massacre, or it may be from an early memorial service.

Because of the very subtle differences between soil strata, these two units were excavated mainly by arbitrary levels once the rootmat was removed. There is some equivalence between the profile and the excavations levels. Stratum A on the profile was excavated as A1, Stratum C as A2, while Strata D, E, F, G, and H, were excavated as Levels A3 and A4. Level A4 was ended at the top of Stratum I, which was the feature fill proper. Stratum I was excavated as Levels A5 to A8. In the following discussion, I will discuss Strata R, A1, and A2 separately, while Strata A3 and A4 will be grouped as a single unit.

Stratum R was approximately 7-10 cm thick and was the standard very dark grayish brown silt loam. It yielded 57 artifacts. Most (81%) of these were iron artifacts, mainly unidentifiable fragments (n=42), along with a piece of barbed wire and three crown caps. The rest of the artifacts were five sherds of refined white earthenware, three bone fragments, and three pieces of glass.

Stratum A was a 5 to 15 cm thick stratum of very dark grayish brown silt loam, with coal and clinker. We recovered only five artifacts from this stratum; brick fragments (n=11), seven pieces of what are probably rodent bones (n=7), unidentified iron pieces (n=7), a crown cap, four glass sherds and a piece of refined earthenware.

Stratum C was about 5 to 8cm of very dark grayish brown silty clay loam. This stratum was also crisscrossed by rodent burrows. It yielded 29 artifacts. These were mainly can (n=12) and brick fragments (n=8). The remaining nine artifacts consisted of ceramics (n=2), bone (n=2), and one piece each of glass, eggshell, and iron. The most significant artifact we found in this stratum was the wire frame for the wreath, made up of a doughnut-shaped frame and a tripod stand.

Strata D, E, F, G, and H were excavated as two levels, A3 and A4. A4 ended at the top of Stratum I, which was the fill within the pit feature. Stratum D was a lens of very dark grayish brown silt loam, 4-8cm thick. Stratum E was a thin (2-6cm) band of dark brown (10YR 3/3) silty loam. Stratum G appears to be the result of siltation, a laminated stratum of very dark grayish brown (10YR 3/2) to brown (10YR 5/3) silt loam. Stratum F was silting within what was probably a disturbed or eroded part of Stratum G,

also a laminated very dark grayish brown (10YR 3/2) to brown (10YR 5/3) sandy silt loam. We recovered 719 artifacts from these strata. Of these 96% were fragments of tin can (n=690), probably from the top of the feature. The remaining artifacts consisted of 12 fragments of barbed wire, 12 of bottle glass, four piece of wire, and a fragment of bone.

Stratum G is natural silting of the depression that was still left after the cultural filling of Feature 70, and was the last stratum deposited within the feature. It was a thin (approximately 14cm) layer of laminated very dark grayish brown (10YR 3/2) to brown (10YR 5/3) silt loam. The archaeologists excavated 0.42 m³ of this stratum during this season, recovering 15 artifacts and 315 grams of unidentifiable can fragments. Excluding the unidentifiable can fragments, the overall artifact density was approximately 35.7 artifacts/ m³, a significant drop. These artifacts consisted of five dog bones from the skeleton in Stratum I below, where it protruded into Stratum G, five bones, probably cattle, a 16" long iron tube, two sherds of glass, and two Type I cans.

We did not get to the base of **Stratum I** during the 1998 season. We were able to establish that it was at least 1.2 m thick. We excavated one level (A5) of Stratum I in both units, and then decided to concentrate out efforts in N505/E533. We excavated levels A5 through A8 in this unit before stopping. Level A8 was excavated only in the Southwest quadrant of the unit. Level A5 contained 2,932 artifacts, 96% of which were tin cans and can fragments (n=2,813). After this the next largest group of artifacts was bottle and jar glass (n=54). We also recovered 12 sherds of ceramic (8 refined earthenware and 4 stoneware), 25 seeds, possibly from rodent intrusion, barbed wire (n=9), wire (n=8), the lid from an enameled tinware coffeepot, brick fragments (n=2), bedsprings (n=5), and one piece of unidentifiable iron.

Level A6 was excavated only in Unit N504/533. We recovered 2,415 artifacts in this level. Tin cans (n=2,229) were the largest group, composing 92% of the assemblage. Ceramic sherds (n=75) were the next largest group. Other than two porcelain sherds and a stoneware one, this was all refined earthenware. A wide variety of vessels could be identified. Glass artifacts (n=61) were composed of bottle glass (n=29), unidentifiable hollow vessel glass (n=12), kerosene lamp chimney (n=7), flat glass (n=4), and one fragment each of a bowl, a lid, and a tumbler. The remaining glass could not be identified. The remaining artifacts included a miner's headlamp and the sole from a woman's shoe.

Level A7 yielded 2,173 artifacts. The percentage of tin cans (72%, n=1,726) was somewhat lower in this level as A7 is below the dense concentration of cans at the top of the feature fill (*Figure 10*). The ceramics (n=64) were made up of stoneware (n=4), refined earthenware (n=40) and porcelain (n=20). Eleven sherds of the porcelain were probably from a decorative classical statuette. Most of the bottle glass (n=288) was composed of otherwise unidentifiable fragments from hollow vessel (n=170). Among the glass artifacts were kerosene lamp chimney sherds (n=44), bottle glass (n=29), a stein, a lid, and a cold cream jar. The remaining artifacts from this level included cow bones (n=37), a pocket watch back, and a spoon.

Level A8 was the excavation in the northwest quadrant of N505/E533. It yielded 910 artifacts. Cans (n=556) were still the largest group (61%), but still less than the upper levels. Ceramics (n=18) included seven fragments from the porcelain statuette in A7, along with three more pieces of porcelain, five refined earthenware, and four

stoneware. Most of the glass (n=56) was unidentifiable (n=48). Four pieces were from bottles and four were flat window glass. This level seemed to contain a broader range of artifacts than the higher levels, including nails (n=59), clothing items (n=6) (3 buttons, a suspender part, a hatpin, and a buckle), furniture casters (n=2) and part of a stove.

We returned to **Stratum I (Continued)** during the 1999 field season and took up excavations again beginning here. Stratum I overlay Stratum J, and marks a resumption of either trash disposal, or at least artifact rich trash disposal. The excavated volume (0.23m^3) contained 427 individual artifacts, along with 6,437.9g of unidentifiable can fragments. Excluding the unidentifiable can fragments, the artifact density was 711.7 artifacts/ m^3 , a marked increase over the 10.5 artifacts/ m^3 in Stratum J.

The overall artifact profile was similar to that of Stratum K, with the main differences being a considerable amount of bone in Stratum I from a complete dog skeleton, and less unidentifiable glass since the glass in Stratum I was not melted. The dog skeleton (n=137) was 33% of the Stratum I material. Bottle glass (n=89) was 21%, unrecognizable glass (n=34) was 8%, identifiable cans (n=95) were 22%, and food-related artifacts (n=48) were 11%. These five groups were 95% of the assemblage.

The 89 bottle glass items included nine complete bottles. Three of these were pharmaceutical style bottles embossed "HAMLIN'S WIZARD OIL." Hamlin's was a popular patent medicine in the later 19th century with a considerable alcohol content. Parts of two additional Hamlin's bottles were also recovered. The Hamlin's bottles were machine-made and two were corked. Other complete alcohol bottles consisted of two that were embossed "JOS TRINER" and "CHICAGO" and a complete corked whiskey flask. The remaining complete bottles were a wide mouthed octagonal bottle, possibly for olives, a condiment bottle with a Perry Davis finish, and a shoe polish bottle embossed "WHITTEMORE/BOSTON". The shoe polish bottle had a swab inside. In addition to the complete bottles there were fragments of nine fragmentary bottles, including the two Hamlin's ones mentioned above. Among these were 56 fragments from what is probably an octagonal ketchup bottle embossed "H.J. HEINZ CO. PAT'D / 36", a machine-made bottle embossed "IPCO", and two pharmaceutical bottles.

The 95 identifiable individual cans consisted of 66 evaporated or condensed milk cans (Type I cans), 12 possible fruit or other solid food cans (Type II cans), three sardine cans, and 14 cans that could not be identified. In four cases Type I cans had been placed inside Type II ones before being disposed of, suggesting that these are the remains of individual meals. One can also had a 0.30 caliber cartridge inside it. The headstamp was illegible.

The food-related group consisted of an iron spoon, an enameled tinware lid, 22 glass items, 21 sherds of white refined earthenware, three sherds of stoneware. The glass included a complete canning jar, two pickle jars (embossed "H.J. HEINZ & CO."), and fragments of two other Heinz pickle jars. The white refined earthenware sherds were all undecorated. One sherd had a maker's mark of "HOMER LAUGHLIN / E2H", which is datable to 1912. Other than being from hollow vessels, the stoneware was unidentifiable.

The remaining artifacts from this stratum included six fragments of a leather belt with an iron buckle, six wire fragments, an iron spike, and a possible tent peg.

Stratum J was, like K, a level, rather than a sloping, stratum. It was a dark grayish brown (10YR 4/3) silt loam and averaged about 43 cm thick. The excavated volume was 0.86 m^3 and contained only nine artifacts, a density of 10.5 artifacts/ m^3 .

This does not include 1,687g of can fragments. This is 1.6% of the artifact density of Stratum K below and 1.5% of the artifacts in Stratum I above. Stratum J represents either a lull in trash disposal, or the dumping of clean soil into the pit, possibly to control the odor. The artifacts from Stratum J were two milk cans, a complete machine-made pharmaceutical bottle embossed "DAVIS VEGETABLE PAINKILLER" and "C" on the base, four unrecognizable glass sherds, a sherd of white refined earthenware, and a bone fragment. One unusual object was a length of human hair, which was solidly embedded in the matrix.

The next event was the deposition of **Stratum K**. This stratum was distinguishable as a mass of tin cans that overlay the south (down-slope) part of Stratum L and lapped against the south edge of Feature 70. It is possible that this material had been dumped in at the north and simply rolled down the pile to its current position. The matrix was a dark grayish brown (10YR 3/2) silt loam and averaged 42cm thick. The archaeologists excavated about 0.84 m³ of this deposit, which yielded 541 artifacts, a density of about 644 artifacts/ m³. This estimation of density does not include 15,997g of tin can fragments that could not be attributed to individual cans. The actual artifact density was therefore considerably higher.

Except for the large number of tin cans, the overall artifact profile of Stratum K was similar to the of Stratum L, being dominated by bottle glass (23%, n=125), unrecognizable glass (20%, n=110), and food-related artifacts (16%, n=87). These three groups were 59% of the assemblage from this stratum. The bottle glass included three complete or nearly complete bottles; a brown beer bottle and two small (2"high) perfume bottles. The beer bottle was machine produced with a crown cap finish, while the perfume bottles were both blown in mold. Five bottle fragments were embossed; two base sherds with "18", one with "7 11", a body sherd with "..MARK../..TED.." (probably "TRADEMARK PATENTED"), and another with "..00..". The functionally identifiable bottle glass consisted of the beer and two perfume bottles and five whiskey flask sherds. Three of the bottle glass items were machine produced (post 1903) and two were mold-blown (pre ca. 1925). Forty one of the 125 bottle glass items were solarized purple, giving a manufacture date of before ca.1915. Of the unidentifiable glass, most was unidentifiable because it was melted (85%, n=94).

The food related artifacts were primarily plain white refined earthenware (n=75). The rest of the food items were of stoneware (n=13), porcelain (n=4), glass (n=13), and iron (n=2). None of the white refined earthenware was really functionally identifiable. One sherd was a cup handle; otherwise 15 pieces were identifiable only as hollow vessels. Three sherds had maker's marks, all from the East Liverpool pottery district in Ohio, "[HOMER L]AUGHLIN/ ..5 2 N", "[HOMER] LAUGHLIN/ 7 2 N", and "HALL/ [CH]INA". The published information on the Homer Laughlin backstamp codes is conflicting (Gates and Ormerod 1982:129, 136), and these backstamps are either 1912, or 1922. The circumstances at the Ludlow site strongly favor a 1912 date as we know of no extensive occupation after 1921, although there were annual memorial services. The Hall China mark is one that was used from 1903 until 1911 (Gates and Ormerod 1982:56), which supports the earlier dating of the Homer Laughlin sherds.

Of the remaining ceramics, ten of the 13 stoneware sherds were from jugs, probably for whiskey. The four porcelain sherds were from hollow vessels. Two of these sherds were Japanese porcelain with green and red enamel decoration. The glass

items consisted of four solarized purple beer stein fragments, four fragments of a clear flat vessel with embossed floral decoration, four fragments of a hollow solarized purple pressed glass vessel, and two jar bases. The jars were both embossed "FOSTER/ 401". The iron food-related items were a fork and an enamelware bowl, 4.3" in height, with a diameter of 7.75" diameter, probably a cooking vessel. The food debris consisted of 32 pieces of bone (6% of the Stratum K assemblage). These were predominantly from cattle, and 18 had been butchered by sawing. The excavators recovered a total of 17,130.5g of can fragments, of which 1,133.5g could be attributed to individual cans (n=22). These included a log cabin maple syrup can and a sardine can.

Stratum K also showed a small increase in the percentage of architectural material being disposed of in the pit (9%, n=50). Most (44%, n=22) of this was flat glass, either from windows or some other paned object. Also recovered were five sherds of thick (0.3") glass tile, one piece of which had gold paint on one side. The rest of the architectural artifacts from Stratum K consisted of 16 wire nails, a possible tent peg, three nuts and four bolts, and a fragment of marble tile. A number of articles related to furnishings within the tents were also recovered consisting of five corner plates possibly from a chest, two casters from a wheeled object, possibly a chair, three furniture springs, two pieces of otherwise unidentifiable hardware, and three sherds of a bisque porcelain figurine. Other than two iron buckles and a suspender part, the personal items were all shoe parts, including fragments from a woman's boot and from an unidentifiable shoe.

This stratum also yielded two cartridges. One was a 32 caliber and the other a 30 caliber. The 32 was center-fired, 0.67" in height, and was headstamped "32 W.R.A. 00 A.C." and was manufactured by the Winchester Repeating Arms Co. The 30 caliber cartridge had exploded. The headstamp was "30 / U.M.C. / REM". It was manufactured by the Remington Union Metallic Co. and dates to after 1902 (Sutton and Arkush 1996:173).

Stratum L was a thick stratum, sloping in from the north edge of the pit. It averaged about 23cm thick, and was a relatively loose dark brown (10YR 3/3) clay loam. The northernmost portion of this stratum had been excavated in 1998, but had not been distinguished as an individual stratum. This season the archaeologists excavated approximately 0.23 m³ and recovered 51 artifacts, a density of 222 artifacts/ m³, a dramatic drop off from the earlier depositional contexts. The nature of the assemblage is also different, being dominated by food-related artifacts such as ceramics and bottle glass, rather than food remains. Here bottle glass (22%, n=11), food-related artifacts (37%, n=19), and unidentifiable glass (25%, n=13) (most probably bottle glass) were 84% of the assemblage, whereas in the strata below these three categories accounted for 10% to 25%. While the small sample sizes need to be considered there does seem to be a significant change in the kinds of material being deposited.

Besides the bottle glass, all the food related artifacts were ceramics; 13 white refined earthenware, three porcelain sherds, including one fragment of Japanese porcelain, and three stoneware sherds. One piece of stoneware was labeled "P. FRAZ.." The functionally identifiable refined earthenware consisted of sherds from a cup or mug (4" rim diameter), a bowl (6" rim diameter) and a plate (9" rim diameter), and two vessels identifiable only as hollowware. Other artifacts from this stratum consisted of two pieces of what appears to be thick (0.2"-0.3") glass tile, two pieces of bone, a leather shoe

fragment, and two pieces of wood. The wood was squared and burned. Of the 13 pieces of unidentifiable glass, 12 were melted.

Stratum M was a thin band of dark yellowish brown (10YR 3/4) clay loam heavily mottled with olive brown (2.5Y 4/3) sandy loam. This stratum averaged about 13cm in thickness and overlay Strata N and O, and lapped up against the tin chest in Stratum N. Stratum was approximately 0.13 m³ and yielded 63 artifacts and 504g of non-diagnostic tin can fragments. The overall artifact density of 600 artifacts/ m³ was similar to that of Stratum N, which had 630/ m³.

The artifact profile was similar to that of Strata N and O in that it was characterized by relatively high proportions of wire (19%, n=15) and food remains (10%, n=8), all of which were burned bone. The percentage of bottle glass was also similar (15%, n=12). The 12 bottle glass items included two complete clear flasks, one pint and one 1/2 pint, embossed "FULL PINT" and "FULL 1/2 PINT" respectively. Both had Owen's scars on the base giving a date range from 1903 to the 1950s. Stratum M was unusual in yielding a large amount of wood (29%, n=23). Twenty of these fragments were fairly large and had been worked, sawn and squared-off along the length. All were burned. The other artifacts from this stratum included two forks, five furniture springs, two pieces of refined earthenware ceramics, and four nails.

Stratum N was a localized pocket of very dark grayish brown (2.5YR 3/2) sandy loam, heavily mottled with yellowish brown (10YR 5/4) sandy loam. Stratum N was about 0.10 m³ of matrix, which yielded 63 artifacts, a density of about 630 artifacts/m³. Like Stratum O, this material was predominantly food debris—burnt and sawn bone (35%, n=22), but in contrast Stratum N contained no wood and a large number of cans (17%, n=11) and wire (22%, n=14). The rest of the material was composed primarily of bottle glass (14%, n=9), which included a complete bottle. The complete bottle was a brown beer bottle embossed "BLATZ" on the body and "23" on the base. This was from the Val Blatz Brewing Company of Milwaukee, WI. This company operated from the 1870s into the 1960s. Other than the fact that it was a machine-made bottle (post 1903), the bottle was not diagnostic. The other bottle was fragmentary. One piece was solarized purple and from a machine-made bottle and is thus datable to 1903-1915. The excavators recovered 2,445g of can fragments, of which 679g were too small to be identified. The remaining 1,766g were from 11 individual cans; five Type I cans, probably evaporated or condensed milk cans, two that are probably meat cans, one oval can, and a large can, almost a chest. The last measured 9.5" x 9.5" with a height of 14." The other two cans could not be identified further. Nearly all the can fragments recovered here had been flattened, implying careful and deliberate disposal.

Stratum O was the next stratum deposited. The test unit only clipped the edge of the stratum. Stratum O appears to slope into the feature from the north edge. By the time this stratum was deposited intensive dumping into the feature from the colony side had been underway for a while. Earlier dumping episodes would lie further to the north of our test area. Stratum O was a very dark grayish brown (10YR 3/2) slightly sandy loam, flecked with charcoal. This stratum contained 68 artifacts, a large number of artifacts given its small size, a comparable density of about 1,300 artifacts/ m³. The assemblage was predominantly faunal remains (28%, n=19), mainly burnt and sawn bone, wood fragments (24%, n=16) bottle glass (13%, n=9), and food-related artifacts (10%, n=7). The food related artifacts included two forks, along with white refined earthenware (n=3),

a sherd of stoneware, and a fragment of an iron cooking pot. The bottle glass included four finishes from machine-made bottles, probably whiskey flasks, two separate bottles embossed "THE CRYSTAL/ BOTTLING CO./ TRINIDAD/ COLO." "CONTENTS 7 1/2 FLUID OZ." and "C.B." on the base. The base from a third bottle was also embossed "CB" and is probably from the same company. It was also embossed "OP 731 Q" along the foot. A fifth bottle fragment was embossed "171." The remaining artifacts included four architectural artifacts, all of which were nails, and three springs, probably from beds. Not included in the counts were 920g of flattened tin can fragments.

Stratum P was a thin layer of dark yellowish brown (10YR 4/6) sandy loam, averaging 6cm in thickness. The stratum was level and extended across the entire floor of the excavation. It yielded 170 artifacts, the bulk of which were crown bottle caps (56%, n=95), wood fragments (16%, n=27), and some unidentifiable copper sheet fragments (7%, n=12). This was a very dense deposit compared to the other strata, for comparative purposes containing approximately 2,833 artifacts per m³. Stratum O had the second greatest artifact density, 1,300 artifacts/m³.

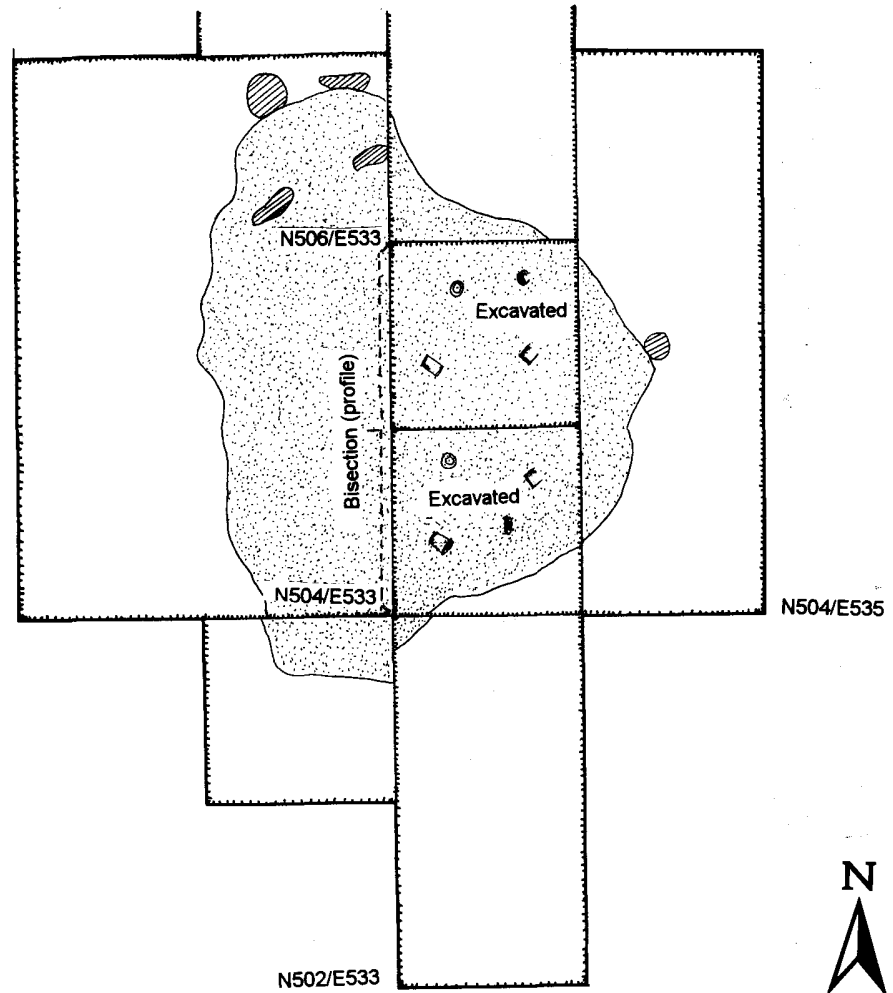
The volume of bottle caps in this thin stratum was probably its defining feature. If, as seems likely this was initially a privy, then there may have been a considerable amount of drinking, either of soda or beer, inside, or in the vicinity, of the privy. Either that, or the bottle caps were been set aside elsewhere and dumped into the privy. The bottles were not deposited here. Only eight pieces of bottle glass were found in Stratum P. The bottles may have been saved to return for a deposit. The hoarding of recyclables, and especially bottles, was, and still is, a common economic strategy among the poor.

Five food-related artifacts were found. This assemblage was rather unusual in that it consisted mainly of cutlery—three spoons, a fork, and one sherd of a molded refined earthenware bowl with gilded decoration. The spoons were two teaspoons, one of which was copper alloy with floral embossing, and a tablespoon. Other artifacts were two pocket watch backs, an iron buckle, a toy marble, and two identifiable tin cans.

Summary and Interpretation

In conclusion, Feature 70 appears to have been a privy with Stratum P being privy deposit. The sheer number of bottle caps in this deposit makes one wonder if it was not also a place for private drinking, unless somebody just dropped a load of caps down into the privy. Overlying the privy stratum was a layered series of refuse deposits, Strata K, L, M, N, and O. These were capped by a relatively sterile layer (Stratum J) that either represents a period of abandonment or at least cessation of dumping, or an effort to seal the privy, probably to control the smell. Dumping resumed with the deposition of Stratum I. The remaining strata were natural silting of the privy depression.

Our working interpretation in the field was that Feature 70 was possibly a tent cellar that had been filled with trash after the massacre. Our analysis of the artifacts in conjunction with the stratigraphy suggests that this initial interpretation was incorrect. The stratigraphy is not consistent with a single cleanup episode, and the assemblage is overwhelmingly "trash"--tin cans, bottles, etc. If this were cleanup after the massacre, we would expect items such as stove parts, broken valuables, bed parts, and other furnishings. Our conclusion is that Feature 70 was used for trash disposal while the colony was occupied, and is therefore more likely to be a feature such as a trash pit, or privy.



Feature 70
Plan View

Key:

Can: 

Rodent Burrow: 

0 50 100 150cm

Figure 9: Feature 70 Plan View

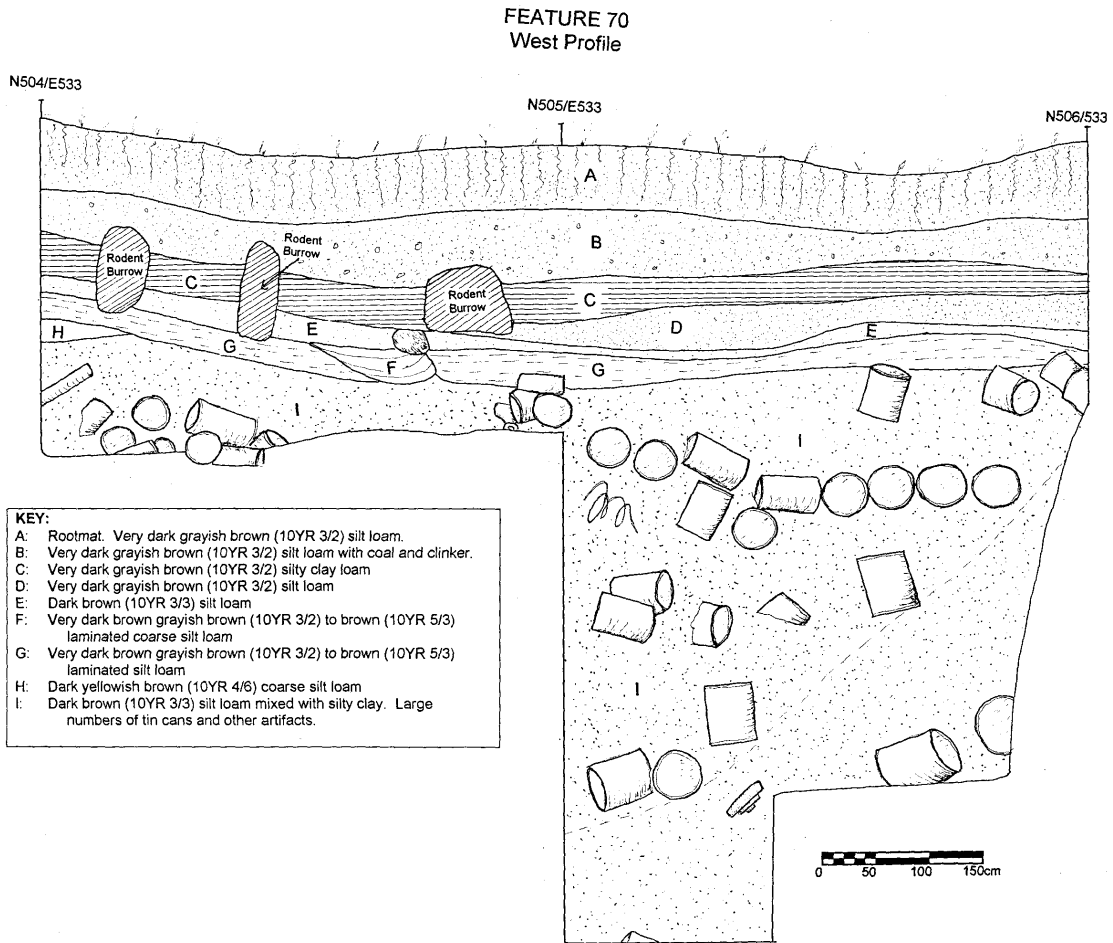


Figure 10: Locus 6, west wall profile

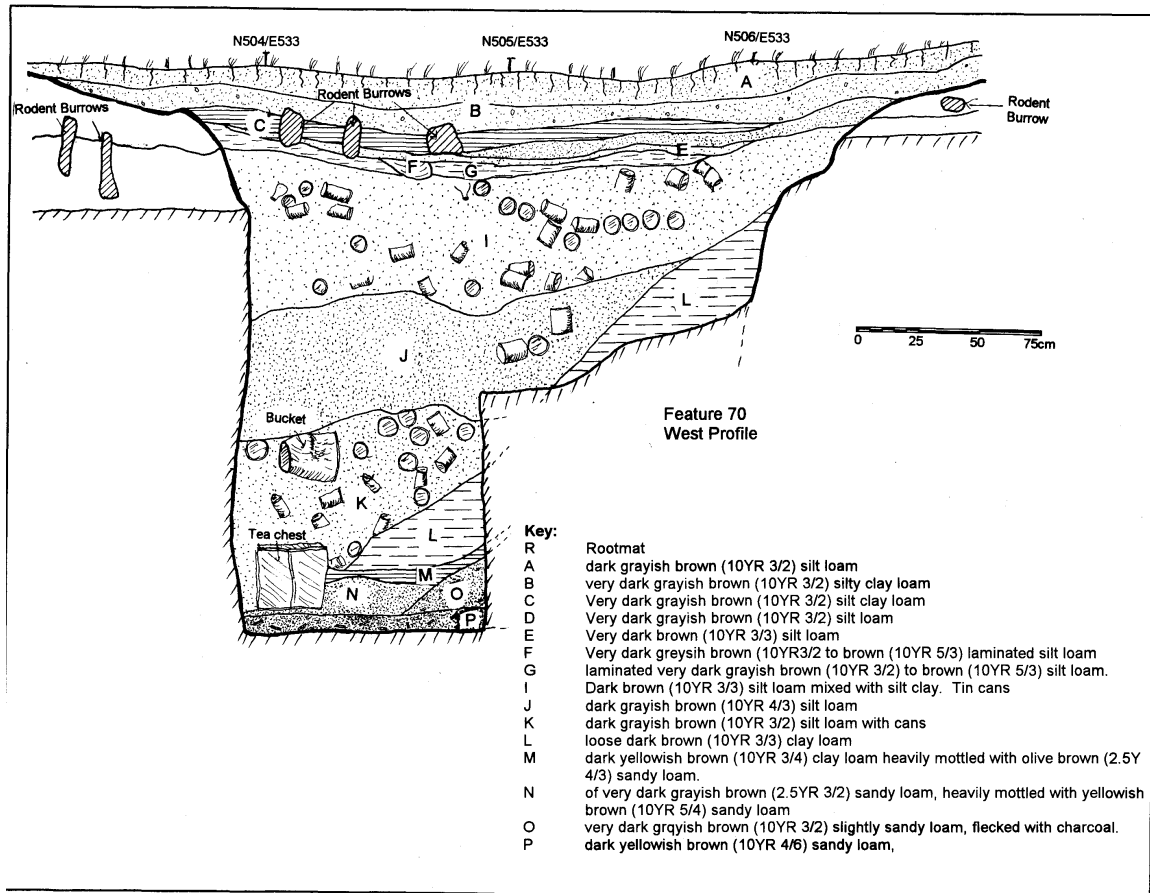


Figure 11: Feature 70, West Profile

7. *Locus 7*

Locus 7 is the trash dump for the colony. It runs along the south bank of Delagua Arroyo, north of the colony. The surviving portion of the midden is approximately 30m north-south and 100m east-west. Much of the midden has been eroded away due to cutting of the arroyo bank. Because the midden deposits are eroding into the arroyo and the material and information is being lost, project leaders have dedicated a portion of each season to this area for excavation. In this section, we will discuss each year's excavation separately since each year focused on a different area of the midden.

1997 and 1998

Project archaeologists excavated one unit here in 1997 (N835/E529) and four additional units in 1998 in a north-south line at 10m intervals (N830/E489, N830/E501, N830/E510, and N830/E520). In general, the stratigraphy consisted of 4-8cm of rootmat over 10-20cm of very dark grayish brown (10YR3/2) silt loam. The natural subsoil was a dark brown (10YR 3/3) compact silt loam.

Stratigraphic Discussion

The four units excavated in Locus 7 yielded a total of 1087 artifacts, with 219 to 330 artifact coming from each unit. **Stratum A** (the rootmat) contained 712 artifacts, mainly tin can (n=138), glass (n=274), ceramics (n=178), and faunal remains (n=34). The identifiable glass was primarily bottle glass (n=120), with the remainder being sherds from a jar, cups (n=2), lids (n=3), windows (n=12), and kerosene lamp chimneys (n=7). We also recovered two blue glass beads. One notable artifact we recovered was a revolver chamber complete with three unfired shells. This along with some of the other artifacts, such as stove (n=2) and clothing parts (n=7) suggests that some of this material may be post-massacre clean-up.

Stratum B contained 341 artifacts. This assemblage was mainly can fragments (n=162) with smaller amounts of ceramics (n=25), glass (n=41), faunal remains (n=34), and shoe parts (n=42). The identifiable glass was primarily from bottles (n=12), and also included part of a beer stein.

Stratum C was the natural subsoil. We recovered 34 artifacts from the top of Stratum C due to rodent disturbance. These were iron fragments (n=25), faunal remains (n=3) and glass (n=6).

1999

In 1999, project archaeologists placed a 7meter by 1meter trench in order to examine the stratigraphy in more detail and see if there was more fine-grained stratigraphy than could be detected in a one-meter square. The trench extended from N815/E484 to N821/E484 and was excavated as a series of 1m squares. Unfortunately, examination of the walls of the trench did not reveal any complexity to the stratigraphy. The stratigraphy consisted of rootmat (Stratum R), over a homogeneous midden deposit (Stratum A).

Stratigraphic Discussion

Stratum R, the rootmat, contained 55 artifacts, not including clinker and 11.5g of tin can fragments. It ranged from 1 to 3 cm in thickness. The archaeologists excavated approximately 0.14 m³ of Stratum R, which gave an artifact density of 393 artifacts/m³. Bottle glass (n=13) and unrecognizable glass (n=19) were 58% of the assemblage. Unidentifiable iron (n=10) and food-related artifacts (n=9) were the next largest groups. The food-related artifacts were a glass tumbler fragment, a porcelain sherd, and seven sherds of white refined earthenware.

Stratum A was deposited over the natural subsoil and was a 4 to 19 cm thick layer of very dark grayish (10YR 3/2) brown silt loam and clinker. This deposit averaged 0.69m³ in volume and contained 196 artifacts, a density of 284 artifacts/ m³. This excludes clinker and 132g of unidentifiable tin can fragments.

Bottle glass (n=48) and unrecognizable glass (n=72) were the bulk of the material in Stratum A accounting for 61% of the total. The bottle glass contained a number of sherds with fragmentary embossing. One piece embossed was “..GARRE../..VIRG..” which was probably “GARRETT/ VIRGINIA” Garrett and Co. was a Virginia winery. Food-related (n=15), architectural (n=15) and furnishing-related (n=13) artifacts comprised the next largest groups. The food-related artifact consisted of 13 sherds of white refined earthenware, a sherd of porcelain molded with what appears to be a Swiss cross, and an iron bottle opener. The architectural material was 10 nails and five sherds of window glass. The furnishings were 12 kerosene lamp chimney fragments and one piece of furniture hardware. The remaining artifacts included a suspender part and a buckle.

2000

In the 2000 field season, two trenches were excavated, one between N839/E545 and N838/E545 and the second at N822/E484 to N830/E484. Each trench included eight (8) 1meter x 1meter units. The purpose of this testing was to gain an insight into the shared cultural material of the colony. The midden is also under threat of erosion from a river running at the bottom of the arroyo. The testing was a method to gain information on colonists and preserve data before it is lost.

Stratigraphic Discussion

There were three recognized stratum in the midden excavations excluding the surface collections Stratum S. Stratum R, or rootmat, included the vegetal coverage of the matrix, and the immediate surface. Stratum R's (10YR 3/1) depth ranged from 2-3 centimeters. Stratum A's (10YR 4/1) depth ranged from 2-8 cm. And Stratum B (7.5YR 3/1) was not fully excavated. Artifacts (total N=201) recovered included: Architectural 8% (n=17), Nails 4% (n=9), Glass 63% (n=127), Ceramic 14% (n=28), Bone 2% (n=5), cloth 6% (n=12), Bullets .05% (n=1), Personal items 1% (n=2). The material in the trenches reflected items discarded from the camp as well as coal, clinker, and ash. One of the significant finds from the trench ranging from N822/E484 to N830/E484 was a book or newsletter of some sort that was largely in tact. Some phrases were legible and included "'gunmen' locals, company, American....local, Denver, made...herself, it wants

can get print." None of the phrases were complete. Another interesting find was a small portion of a negative from a cartoon film.

2001

A trench was excavated running east-west and consisted of eight (8) 1m x 1m units from N872 E596 to N872 E593. Artifacts were scattered across the surface and mixed with coal and clinker. Burned and melted artifacts also suggested a connection to the burning of the colony. Units N872 E588, N872 E589, and N872 E590 had the largest numbers of the artifacts and the largest amounts of coal and clinker. Artifacts varied in similar compositions as the rest of the site, such as metal, nails, ceramics, and glass. Markings on glass bottles, such as "Trinidad" and "ABCo" (American Bottling Company) suggest consumption of both local and national goods.

There was no clear stratigraphic separation. However, the center units of the trench offered the most differentiation. There is a distinction from the natural layers-root mat, and natural sediments- and coal, clinker, and ash that was culturally deposited. Units N872 E586 and N872 E587 were located on a downward slope. Their artifact distributions may be the result of erosion or artifacts from upper areas washing into these units.

2002

2002 season at Locus 7, the Arroyo Midden was sampled in two different locations this field season. Arroyo Area 1, was located between N834-837 and E 529-530. The second, Arroyo Area 2 was located between N821-825 and E456-457. Both midden excavations consisted of trench lines running from north to south. The stratigraphy for both was fairly consistent –rootmat over a silty clay with dense clinker and other cultural material and intermittent ash deposits. Both areas were excavated to Stratum A, which contained the cultural material. The end of Stratum A was defined by a lack of artifacts.

Arroyo Area 1, along E529, consisted of 7-1m units. Arroyo Area 2, along E456, contained 6-1m units. Arroyo Area 2 was shallower at the south end, but became deeper moving north. These excavations produced the bulk of the artifacts from this year including a hole but flattened metal bucket and a shoe. Other artifacts included the typical glass, metal, nails, buttons, ceramics, and bone.

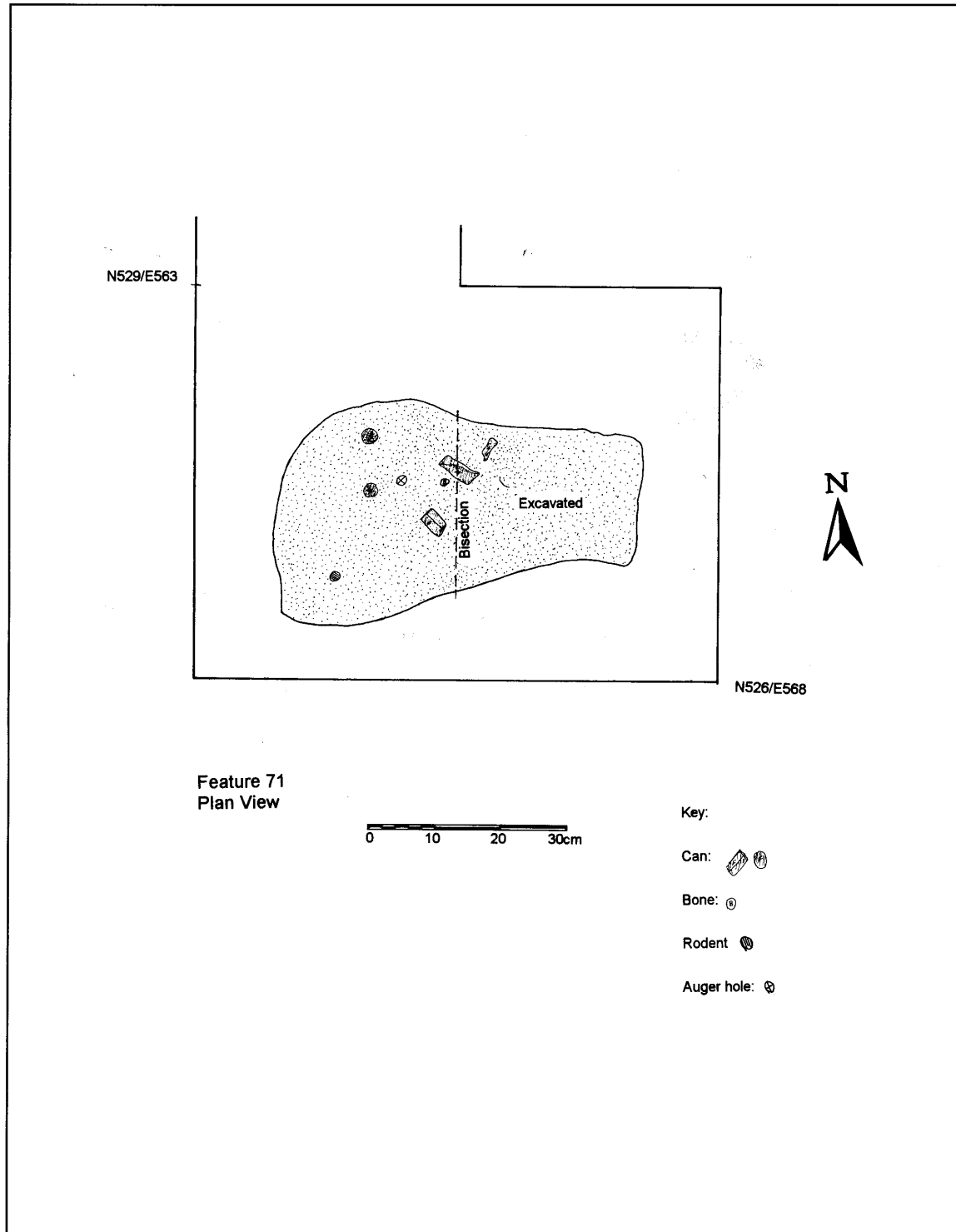
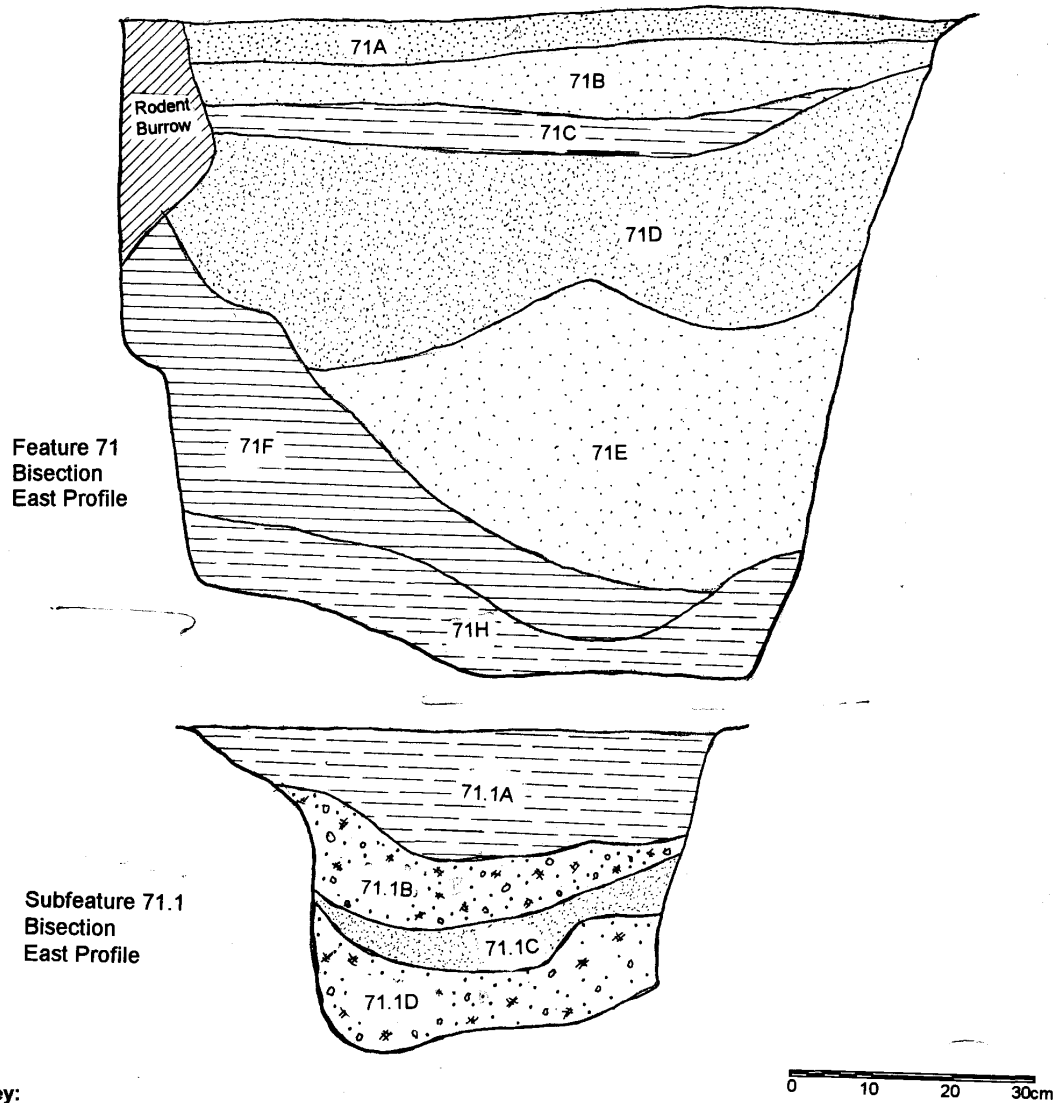


Figure 12: Feature 71 Plan View



Key:

- 71A Very dark grayish brown (10YR 3/2) silt loam
- 71B Brown (10YR 4/3) silt loam
- 71C Dark Olive Brown (2.5Y 3/3) clay loam
- 71D Dark brown (10YR 3/3) sandy silt loam
- 71E Very dark grayish brown (10YR 3/2) silt loam, mottled with yellow sand
- 71F Very dark grayish brown (2.5YR 3/2) clay loam
- 71H Very dark grayish brown (2.5Y 3/2) silt clay
- 71.1A Very dark to dark grayish brown (10YR 3/2-4/2) compact silt clay with coal and clinker
- 71.1B Compact ash and coal clinker
- 71.1C Dark grayish brown (10YR 4/2) silt
- 71.1D Coal, clinker, and ash

Figure 13: Feature 71 and 71.1, East Profiles

8. *Locus 8*

A bench mark was placed at N800/E500 in order to facilitate mapping and laying out of units at Locus 7. This was called Locus 8 in the field and the designation was later abandoned and the locus number was no longer used.

9. *Locus 9*

The 1998 field crew identified Feature 71 using a hand auger. The 1999 field crew fully exposed the feature and placed a trench across the interior to examine the stratigraphy. This was a roughly keyhole shaped feature approximately 3m east-west and 1.5m north-south. It was 1.6 m deep. Except for a small deposit of trash near the top (largely tin cans), the fill was remarkably clean, although there was an intact shaving basin in the fill. There was a pit in the floor of 71, and within that, some burned wood at the bottom. In general, it appears as if this pit silted in naturally.

Stratigraphic Discussion

Stratum R was the rootmat and was about 3 cm thick, yielding 204 artifacts. This was primarily food-related (35%, n=71), unidentifiable glass (34%, n=70), architectural material (12%, n=24), and bottle glass (11%, n=23). The food related material was 81% white refined earthenware (n=57), 17% porcelain (n=12), and 3% glass (n=2). Most of the refined earthenware was functionally unidentifiable. Seven sherds were from plates and nine identifiable only as flatware. Twenty three (40%) sherds of refined earthenware were decorated. The identifiable porcelain was either from cups (n=1) or hollowware (n=5). Four of the twelve porcelain sherds were decorated. The architectural material consisted of 17 pieces of flat glass and seven nails, one of which was a cut nail. The rest were wire nails. Five of the 23 bottle glass sherds were machine-made (post 1903) and 16 were solarized purple and so were manufactured before ca. 1915.

Stratum 71A overlay 71B, and was about 6cm of very dark grayish brown (10YR 3/2) fine silt loam, containing ten artifacts and 76.5g of tin can fragments. Five of the artifacts were charcoal pieces, while the rest consisted of two bone fragments, two glass sherds, and a piece of unidentifiable iron.

Stratum 71A was the top stratum of the feature, and was overlaid by **Stratum A**, which was sediment that had been disturbed by cattle. Stratum A was about 30cm of dark grayish brown (10YR 3/2) silt loam and occurred in all 15 of the 1 m² units that were excavated to fully expose Feature 71. Stratum A contained 596 artifacts. The largest groups recovered were Food-Related artifacts (30%, n=180), Bottle glass (23%, n=137) Unrecognizable Glass (18%, n=108), and Architectural artifacts (10%, n=54).

The Food Related artifacts consisted of refined earthenware (51%, n=91), porcelain (47%, n=86), and glass (2%, n=3) sherds. The percentage of porcelain is high compared to other contexts at Ludlow. The sherds from identifiable refined earthenware vessels were from plate (n=14) and one from a cup. Twelve sherds were hollowware and five were flatware. Thirty (33%) of the refined earthenware sherds were decorated. The functionally identifiable porcelain sherds were all from cups (n=24) or hollow vessels (n=8). Thirty six (42%) of the porcelain sherds were decorated, 24 of these with gilding and a pink and green floral over glaze print. The glass sherds were from pressed vessels.

Other than 14 machine-made sherds, none of the bottle glass was diagnostic. The architectural artifacts were nails (n=33), window glass (n=20), and a brick fragment. Fifteen of the nails were wire, 12 were cut, and six were unidentifiable.

The excavators also recovered seven personal artifacts; a safety pin, two iron buttons, two fragments of shell button, a piece of leather, and an 1893 “Indian head” penny.

Stratum 71B overlay 71C and 71E. It consisted of 7cm of brown (10YR 4/3) silt loam. It contained a dense pocket of trash, probably the results of a single dumping episode—95 individual artifacts, and 670g of tin can fragments. Charred wood (62%, n=40) was the largest group recovered. Twelve (13%) individually identifiable tin cans were the next largest group. All the cans had been flattened before disposal. Two were probably for evaporated or condensed milk, and two were identifiable as cans that were for more solid food such as fruit. The other eight cans had double seamed ends, but it wasn’t possible to determine the diameters or heights. Among the other artifacts were six mammal bones, a fragment of an iron lard bucket, a sherd each of white refined earthenware, porcelain, and solarized purple beer stein, and a fragment of a 2-sided record fragment.

Stratum 71C was another lens and was deposited after Stratum 71D. It was approximately 4cm of dark olive brown (2.5Y 3/3) clay loam containing four individual artifacts and 18g of iron scraps. The artifacts were a piece each of solarized purple glass, porcelain, bone and shoe leather.

Stratum 71D was a lens of dark brown (10YR 3/3) sandy silty loam, 16cm at the thickest point and overlying 71E. The excavators recovered seven artifacts, and 61g of iron fragments. The artifacts consisted of two pieces of charred wood, a cartridge, and a piece each of porcelain, glass, bone, and melted lead. The cartridge was a .30 caliber center-fire, and was headstamped “.30 W.R.A. CO. WCF”.

Stratum 71E was the next stratum deposited after F. This was a very dark grayish brown (10YR 3/2) silt loam, mottled with yellow sand and was 55 cm thick. As with the other thick strata the excavators removed 71E in 10cm levels, recovering 82 individual artifacts and 29g of tin can fragments, from six levels. All but 14 of the artifacts came from the top 4 levels. Wood fragments were the largest group (41%, n=34). All but six of these were burned. One piece was squared-off. After the wood the next largest groups were unidentifiable iron (28%, n=23) and glass (13%, n=11). The other artifacts consisted of five shoe fragments, a brass washer, two pieces of bottle glass, a sherd each of porcelain and white refined earthenware, three bone fragments, including one from a bird, and an enameled tinware basin (12” diameter, 3” height). Feature 71 seems to have sat open for a while and eroded before Stratum 71E was deposited, which suggests that it was open while the colony was occupied or shortly thereafter.

Stratum 71F, a very dark grayish brown (2.5YR 3/2) clay loam, was probably wall collapse. It was piled up against the north wall of Feature 71, 54cm thick against the north wall and sloping down to the south. It was about 10cm wide at the top and 50cm at the base. Stratum 71F yielded only five artifacts; two pieces of wood, two pieces of glass, and a bit of wire.

The pit at the bottom of Feature 71 was designated as **Sub-Feature 71.1**. It measured 60cm across and 50cm in depth. There were four strata within the sub feature, Strata A-D. The top stratum within the sub feature was **Stratum 71.1A**, 30 cm of

compact silty clay with coal and clinker. It contained 12 pieces of wood, a wire nail, 0.5g of tin can fragments, two pieces of shell button, and some ink stained soil, possibly from where a label or newspaper decayed. It was not legible however. **Stratum 71.1B** was a very compact 10cm thick layer of ash and coal clinker containing nine wire nails and an unidentifiable metal fragment. **Stratum 71.1C** contained a fragment of wood and two nails. This stratum appears to be a layer of washed-in subsoil and was approximately 4 cm thick. It contained five wood fragments and a piece of wire. **Stratum 71.1D** was a 4cm thick band of coal, clinker and ash and was overlain by a layer of washed-in silt (Stratum 71.1C).

Sub-feature 71.1 was overlaid by **Stratum 71H**, a 5cm thick layer of very dark grayish brown (2.5Y 3/2) silty clay. Stratum 71H contained 12 artifacts. Four of these were pieces of wood, two of which had been squared off. The other artifacts were five sherds of glass, including three brown bottle glass sherds, a nail, a sherd each of white refined earthenware and of porcelain, and 3g of iron fragments. A thin lens of culturally sterile darker silty clay (**Stratum 71J**) was deposited over H. **Stratum 71I**, which overlay Stratum 71J, was another thin lens of dark grayish brown silty clay mottled with yellow sand. A single wire nail came from this stratum.

Summary

The higher percentages of nails, food-related artifacts and bottle glass recovered from the strata overlying Feature 71 (Strata R and A) suggest that there was a structure here, probably a residential one. The material in the feature itself contained higher percentages of wood and food debris. This material probably reflects the feature's use for trash disposal rather than its original use. The original intended use of Feature 71 remains mysterious.

10. Locus 10

In this area the project excavated 10 units in order to expose Feature 45. This was an area of burned wood and charcoal exposed in a trench graded with a skid loader in the 1998 season. With the possibility that it might be a burned tent floor, the project archaeologists returned to this area in 1999 and excavated a roughly "L" shaped trench to expose and define the boundaries of the burned area. The investigation in 1999 showed little evidence of a tent although additional charcoal staining was identified. It may just be a burned area, or if there was a structure here, it was thoroughly cleaned up after the massacre.

Stratigraphic Discussion

The excavators removed only the rootmat (Stratum R) and the underlying disturbed sediment (Stratum A). **Stratum R** was approximately 3cm of very dark grayish brown (10YR 3/2) silt loam. It yielded 71 artifacts. 41% (n=33) was unidentifiable glass, 25% (n=18) was architectural material, and 17% (n=12) was food related artifacts. The remaining artifacts consisted of six bottle sherds and a piece each of wire and unrecognizable iron. The architectural artifacts were 15 nails (13 wire and two cut nails) and three pieces of window glass. The 12 food-related items were all sherds of white refined earthenware. The bottle glass included a brown glass bottle cap and a finish from a machine-made, crown cap bottle (post 1903).

Stratum A was also 3-4 cm of very dark grayish brown (10YR 3/2) silt loam. It yielded 38 artifacts, 42% (n=16) architectural material, 27% (n=9) unidentifiable glass, and 11% (n=4) food-related objects. The rest of the material was three personal items, three pieces of unidentifiable iron, two sherds of bottle glass, and a bone fragment. The architectural material was three pieces of flat glass and 13 nails. Six of the nails were cut and the rest were wire nails. The food-related items were all white refined earthenware sherds and the personal objects were two shoe eyes and a safety pin.

Summary

The excavations in this area turned out to be ambiguous. Artifact assemblages from this area suggest a living structure on the site or in the near vicinity. The staining could be from a tent structure, but architectural evidence for a structure is limited. There was probably a tent here, as suggested by the staining and the architectural artifacts, but the area was probably cleaned up after the massacre.

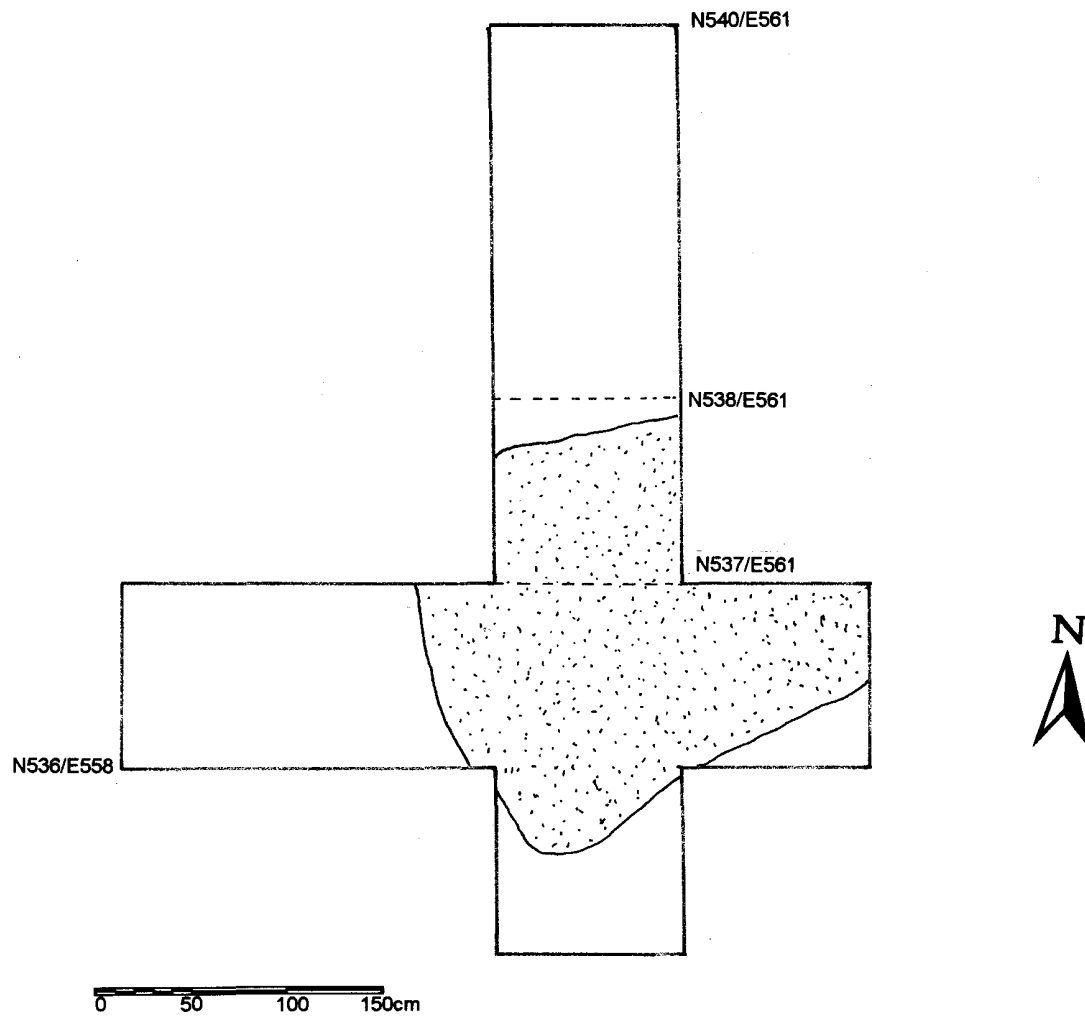


Figure 14: Feature 73, Plan View

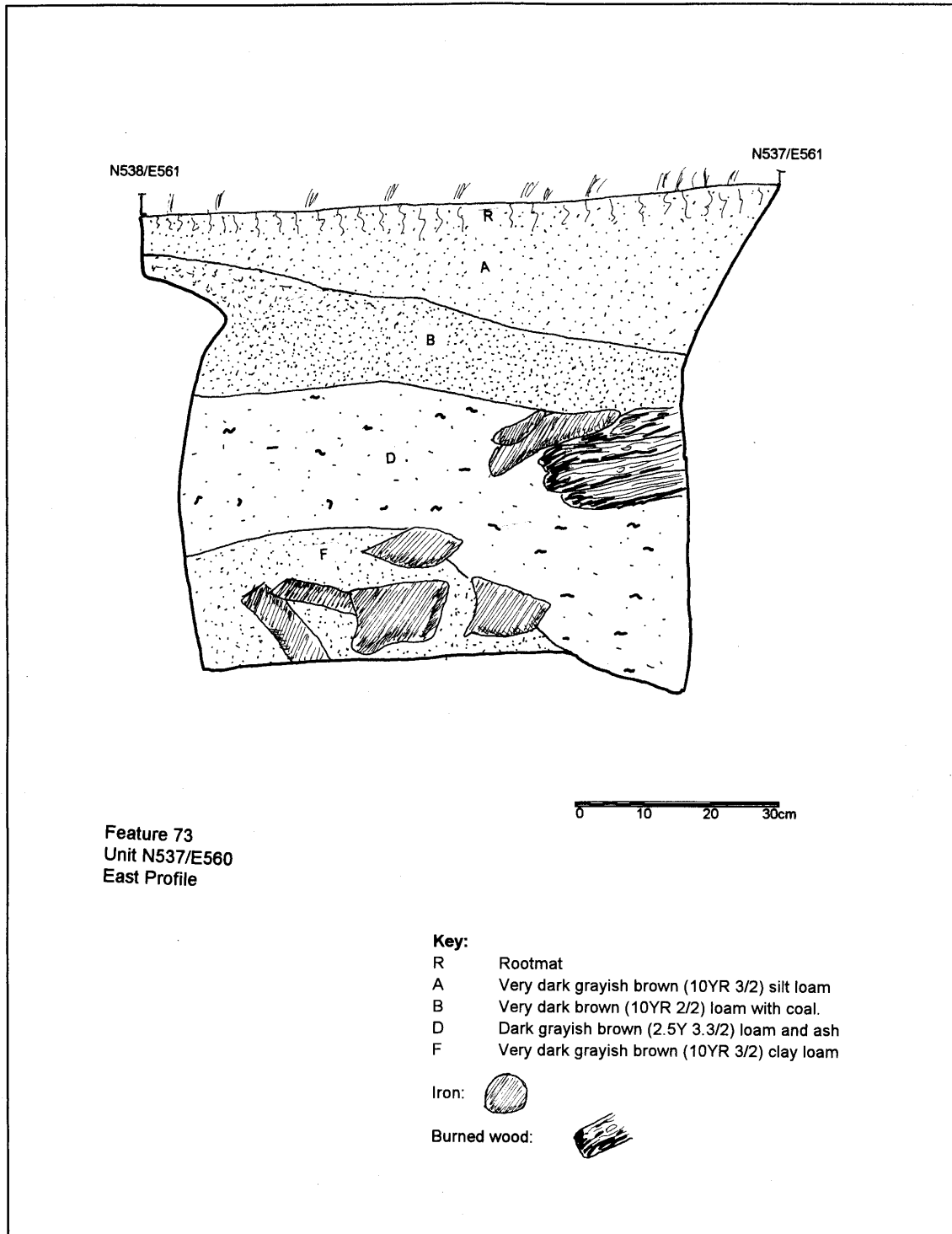


Figure 15: Feature 73, Test Unit 537/E560, East Profile

11. Locus 11

Locus 11 contains one main deep buried cellar feature, Feature 73. The feature was identified in 1999 and briefly tested. The dimensions of Feature 73 were determined by excavation of a 4m by 1m east-west trench, and a 5m by 1m north-south trench. Feature 73 is approximately 2 meters north-south and 4 meters east-west. Intensive excavation of Feature 73 initiated from information gathered during the 1999 season. In 1999, the feature was initially uncovered, and tested. No definitive excavation took place. Proper excavation of the feature required further exposure of the feature boundaries. Exposure of Feature 73 was followed by excavation of the west half of the feature. At this time, the feature was identified as a cellar. They made this determination through the large amount of artifacts and their context, along with the size and shape of the feature. The cellar had a complex depositional sequence that indicated that material was from both the occupations on the tent and post-fire clean up. The cellar measured 3.5m. by 1.5m., and it was a meter deep. This cellar followed a consistent rectangular shape. The cellar walls had reddened due to the extreme heat of the fire, and therefore the boundaries of the feature were clearly delineated. The context of the artifacts further suggested that the artifacts belonged primarily to the surface tent and could be linked to the family living in the tent. The profile of the wall suggested that the wooden planked floor overlying the cellar had collapsed during the fire, preserving the cellar contents. Excavation uncovered numerous artifacts.

In order to begin excavation a full exposure of the top of the feature had to occur. During the 2000 field season, crewmembers placed thirteen units around N537/E560 (excavated in 1999) to reveal the boundaries of the feature. These units initially uncovered the overburden covering Feature 73. At N535, archaeologists placed five units from E559-E564. At N537, five more units were located between E559-E564, and three units were placed at N538, from E561-E563. Two strata were excavated in each of these units, R and A. These strata were excavated in order to fully uncover the boundaries to Feature 73. Strata R and A probably had minimal relation to the feature during its primary use and are more likely the result of alluvial deposition.

Stratigraphic Discussion of Overburden

Stratum R was the root layer, and it averaged 1-2cm in depth. The soil was very dark grayish brown (10YR3/2) silty loam. The artifacts from Stratum R (n= 123) consisted primarily of food-related material: ceramics (1%, n=4), glass (87%, n=106), and can metal (1gm.). Architectural remains were also excavated (1%, n= 7) of which 6 were nails. Two personal items and one bullet cartridge were recovered.

Stratum A was a very dark grayish brown (10YR3/2) silty loam underlying stratum R. Strata R and A are not stratigraphically different. Stratum A averaged between 9 and 19 cm in depth. This stratum was deepest towards the feature (cellar) and became shallower the farther they were situated from the feature. A variety of artifacts were recovered from stratum A (n=394). Again, food-related artifacts dominated the assemblage: ceramics (29%, n=115), glass (58%, n=230), faunal (6%, n=24), and can fragments (176 gm.). Architectural materials (4%, n=17) included nails (3%, n=12).

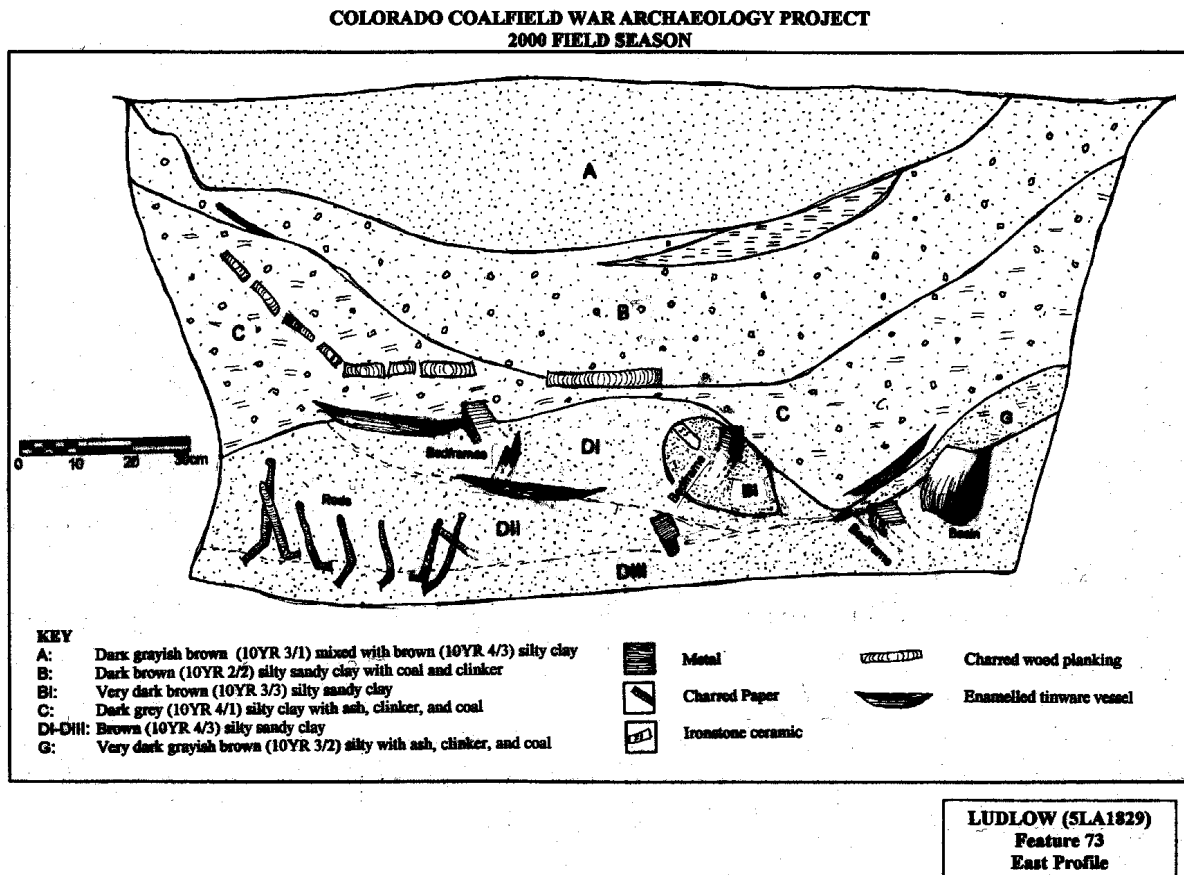


Figure 16: Feature 73 in Locus 11 Stratigraphic Profile, 2000 field Season

Once Feature 73 was completely defined, the feature was divided in half and the West half was excavated during the 2000 field season. The East half was excavated in the 2001 field season. The West half was further divided into halves and excavated as two segments in order to manage high density of material both spatially and for archival purposes. For the purposes of this report, the strata and corresponding artifacts will be discussed as the East half and the West half as they were excavated in different years. Otherwise the halves will be discussed holistically as continuous stratum where appropriate.

Stratigraphic Discussion of West Half

The excavation of Feature 73 revealed a complex depositional history. We identified fourteen distinct strata on the basis of color and textural changes. An individual description of each strata follows.

Stratum 73A was a very dark grayish brown silty clay (10YR3/1). The stratum was 3 cm. at shallowest and 33 cm. at its deepest point. Stratum 73A underlay Stratum R and overlies Strata 73B and 73C. The identifiable artifacts from Stratum 73A (n=847) consisted predominately of food-related items: can fragments (8128.9gm.), ceramics (39%, n=327), faunal (2%, 17), and glass (29%, n=243). One of the glass artifacts was an intact whiskey flask (semi-automatic, two-part mold). Architectural materials (5%, n=45) consisted of nails (1%, n=5) and metal fragments. Personal artifacts (3%, n=27) and bullets/cartridges (2%, n=17) made up the rest of the assemblage.

Stratum 73B, which underlay Stratum 73A, was a very dark brown (10YR2/2) silty clay with large amounts of coal and clinker. This stratum averaged 11 cm in depth, and it contained a large amount of cultural material. The artifacts excavated (n=1378) were mostly of food-related (46%, n=628): can fragments (669 gm.), ceramics (29%, n=401), faunal (1%, n=8), and glass (15%, n=204). One ceramic sherd was recovered with an identifiable maker's mark "J&G Meakin, Ironstone China, England" (ca. 1890, Kovel's). The architectural remains (2%, n=24) included nails (1%, n=9). Personal (1%, n=17) and clothing (1%, n=7) items, which included 2 buttons, make the rest of the recognizable assemblage. One suspender clasp with the words "Shirley President" etched into it was excavated.

Stratum 73C was dark gray (10YR4/1) coarse silty clay with a high concentration of ash, coal, and clinker, and it underlay Stratum 73B. Stratum 73C averaged 43 cm. in depth, and there were fewer artifacts (n=663) in this stratum than the previous one. Food-related materials (89%, n=592) dominated the assemblage: can fragments (848.5 gm.), ceramics (30%, n=200), faunal (5%, n=32), and glass (48%, 315). Another ceramic sherd was recovered with a maker's mark form Meakin Pottery, "J&G Meakin, Eastwood, Hanley." Additionally, a plain-tipped fork that matched the Alaska Silverware collection available through Sears and Roebuck (1897:438) was excavated. Among the glass assemblage was a fragmented jar with a molded squirrel and tree design. The architectural remains (7%, n=48) were the next dominant group, containing nails (2%, n=11). Personal (2%, n=13) artifacts and bullets/cartridges (1%, n=5) were also excavated.

Stratum 73D was brown (10YR4/3) silty sandy clay and average 24 cm. in depth. Stratum D was excavated in Levels I, II, and III. Stratum 73D, which underlies Strata 73B, 73C, and 73E, contained more than double the artifacts than the previous stratum. The artifacts (n=1366) were predominately food-related (73%, n=993): can fragments (4822.6 gm.), ceramics (24%, n=324), faunal (3%, n=47), and glass (36%, n=496). Two sherds were recovered with maker's marks. The first mark, "Ironstone China, J&G Meakin, Hanley England" (ca. 1890, Kovel's), may be part of a set as evidenced by the other sherds with similar marks. A second sherd had the mark, "Homer Laughlin, Genesee, 721." This sherd can be dated to the month, year, and place of its origin. "721" refers to July 1902, Plant 1 (Gates and Omerod 1982:129). The architectural remains (22%, n=295) include nails (7%, n=90) and kerosene lamp wick deflector with its wick. Personal items (2%, n=24), clothing (1%, n=14), and bullets/cartridges (7%, n=6) comprise the remaining identifiable assemblage. Of the clothing group, 6 buttons and 9 gm. of fabric were recovered. One of the bullet cartridges was a "Remington" center-fire.

Stratum 73E, which underlay Stratum 73C and overlies Stratum 73D, was dark brown (10YR3/3) sandy silt. Stratum 73E was a pocket of soil deposition in the western

edges of the feature, and it averaged 43 cm. in depth. There was a presence of wood particles throughout this stratum. The artifacts (n=730) recovered from this stratum were predominately food-related (78%, n=568): can fragments (1711.9 gm.), ceramics (24%, n=134), faunal (2%, n=14), and glass (66%, n= 375). Architectural remains (16%, n=114) include nails (3%, n=23). The remaining identifiable artifacts consist of bullets/cartridges (5%, n=39), personal items (2%, n=14), and clothing (1%, n=5), which include 1 button.

Stratum 73F was dark brown (10YR3/3) clay and averaged 8 cm. in depth. Stratum 73F underlay Stratum 73D and extended to the bottom of the cellar, which was distinguished by the reddened soil of the cellar floor and walls. The artifacts from the Stratum 73F (n=222) are predominately architectural (47%, n=105) and include nails (30%, n=67). Food-related artifacts (38%, n=86) consist of ceramics (25%, n=56), faunal (2%, n=4), and glass (9%, n=21). Bullets/cartridges (15%, n=34), personal items (7%, n=16), and clothing (4%, n=9) comprise the remaining identifiable artifact assemblage.

Stratum 73G was very dark grayish brown (10YR3/2) silty clay with high concentrations of ash, coal, and clinker. This stratum was a small pocket averaging 28cm. that underlay Stratum 73C and overlay Stratum 73D. Few artifacts (n=14) were recovered from this stratum. Food-related artifacts (79%, n=11) dominated the assemblage: ceramics (7%, n=1), faunal (21%, n=3), and glass (43%, n=6). Architectural material (14%, n=2) and clothing (7%, n=1) comprise the remainder of identifiable artifacts.

Stratum 73H was dark gray (10YR4/1) silty clay with high concentration of ash, and its average depth was 14 cm. Stratum 73H was overlain by Stratum 73E, and it intruded Stratum 73D. No artifacts were recovered from this stratum.

Stratum 73I was dark yellowish brown (10YR3/4) silty sand. Stratum 73I was a burnt lens of soil that averaged 6cm in depth and intruded Strata 73H and 73J. The artifacts (n=2) consisted entirely of architectural material- 2 nails.

Stratum 73J was very dark grayish brown (10YR3/2) silty clay with a high concentration of ash, coal, and clinker. This stratum averaging 18 cm. in depth overlies Stratum 73D and had few artifacts (n=15). Architectural material (80%, n=12) dominated this assemblage. Food-related glass (13%, n=2) and a bullet (7%, n=1) comprised the remaining assemblage.

Stratum 73K was dark brown (7.5YR3/2) sandy silt and it underlay Stratum 73D and overly Stratum 73M. Stratum 73K averaged 2.5cm. in depth. The artifacts (n=57) recovered from this stratum were predominately food-related (86%, n=49), which primarily consisted of glass (85%, n=46). The remaining artifacts were architectural material (14%, n=8), consisting of nails (12%, n=7).

Stratum 73L was very dark brown (7.5YR2/5) silty sandy clay and averaged 2 cm. in depth. Stratum 73L overlay Stratum 73N and underlay Stratum 73D. This stratum was distinguished by its soil color and was hypothesized to be a different deposition or wall slump. Very few artifacts were recovered (n=2). A food-related glass sherd (50%, n=1) was excavated.

Stratum 73M was very dark grayish brown (10YR3/2) sandy silty clay that averaged 2 cm. in depth. Stratum 73M located in the southwestern corner of the northern portion of the cellar feature overlay Stratum 73N and underlain Stratum 73D and 73K. The artifacts (n=9) recovered from this stratum architectural (44%, n=4) and food-related ceramics (56%, n=5).

Stratum 73N was very dark brown (7.5YR5/2) sandy silty clay, which was mottled (5YR4/6), and it was the bottom of the cellar, which was distinguished by its reddened soil. The only artifacts recovered from this stratum were wood fragments (n=3).

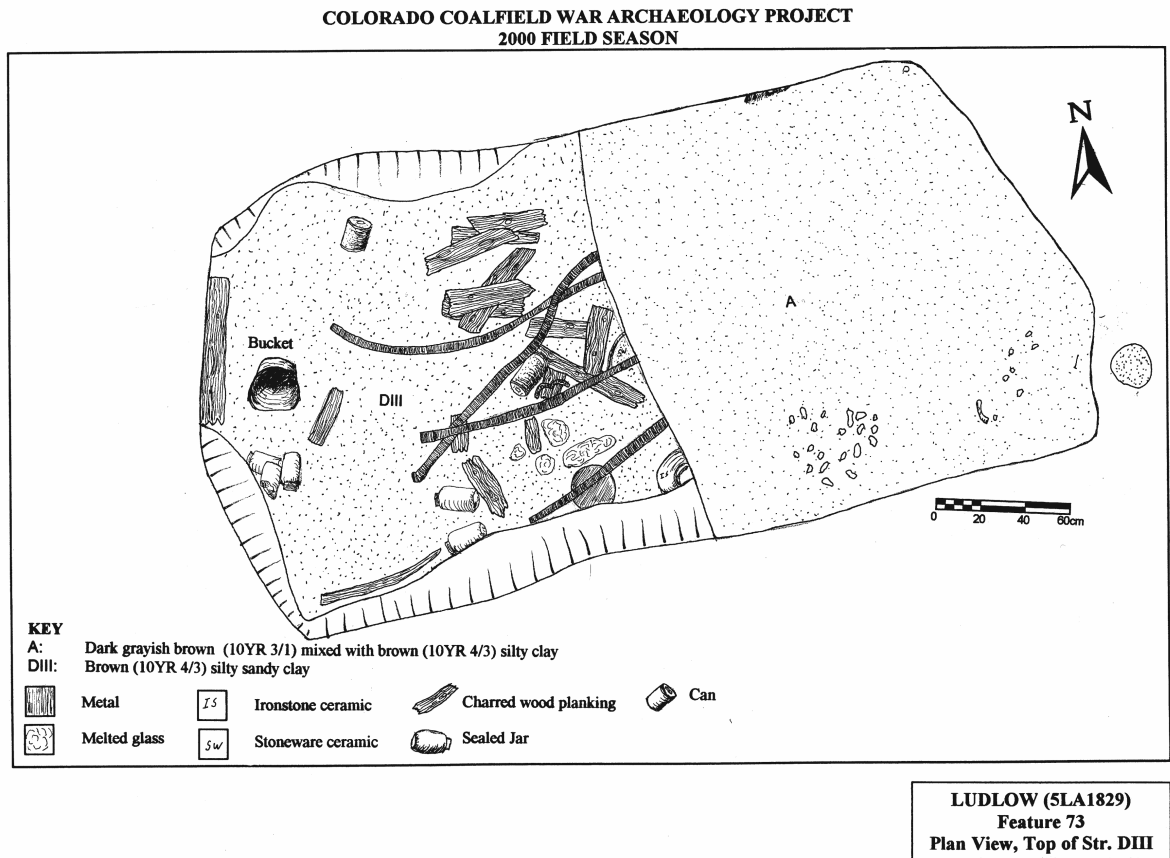


Figure 17: Feature 73 in Locus 11, Plan View, 2000 field season

Stratigraphic Discussion of East Half

During the 2001 field season, the eastern portion of Feature 73 was excavated (see *Figure 18*). By the end of the season, this cellar feature was excavated in its entirety. In contrast to the previous season, the eastern half of the cellar was not divided into two portions. The artifacts from the 2001 field season have not been fully analyzed, and as a result, they are not included in this report.

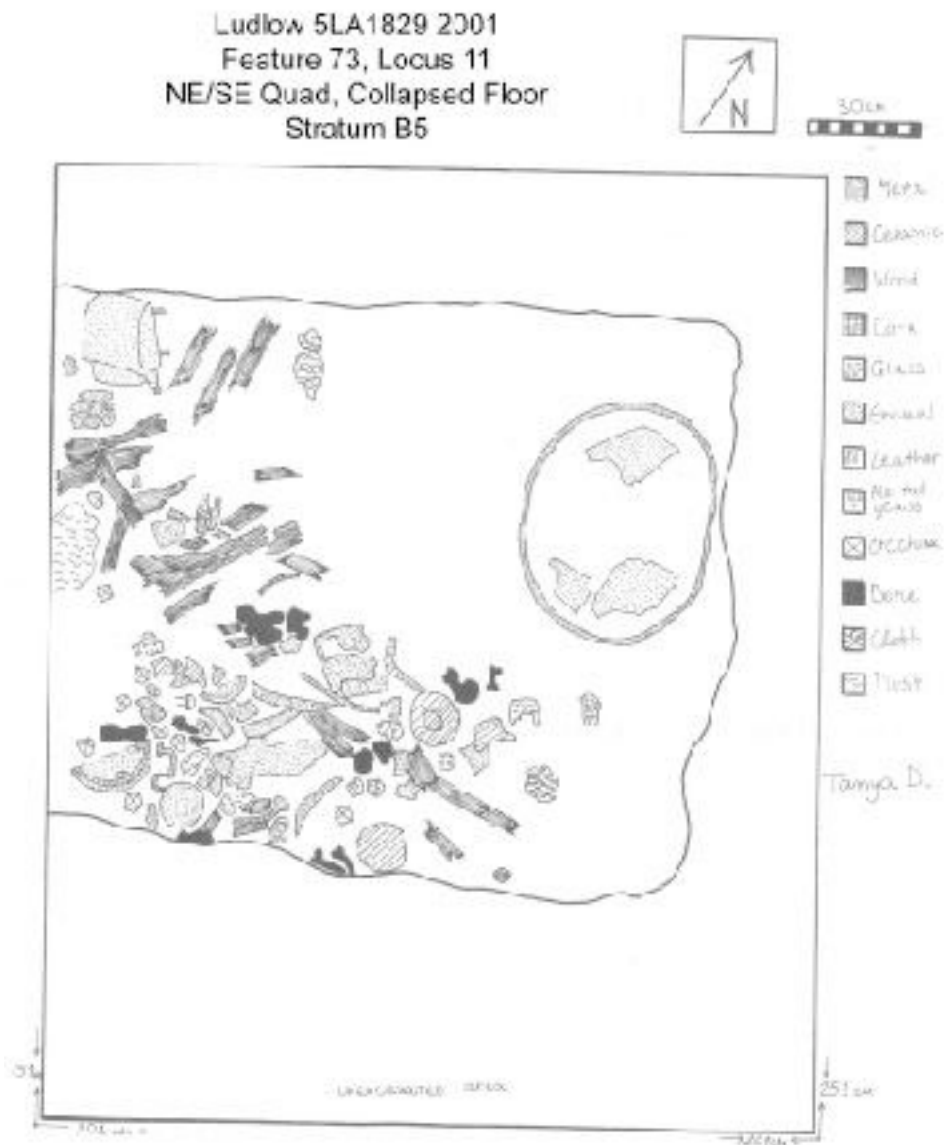


Figure 18: Plan View Feature 73, Locus 11, 2001 Field Season

Also, the strata perceived during the 2000 season do not clearly correlate to the strata of the 2001 season. A number of factors contribute to the differences observed between the seasons. First, the cellar's depositional sequences indicate great variation from one

part to another. Second, the difference in soils was a subjective determination and the excavators in both seasons were different. The 2000 field season stratigraphic designations roughly correlate to the 2001 field season strata in the following manner: Strata 73B-C (2000) are equal to 73B (2001), Strata 73E-F (2000) are equal to 73C (2001), and Strata 73G-N (2000) are equal to 73E (2001). Following is a description of each strata excavated in the 2001 field season.

Stratum 73B was dark brown (10YR3/3) silty loam and varied between 50 and 75cm. in depth. Stratum 73B was excavated in Levels I, II, III, IV, and V. The artifact concentration was dense and grew as the depth of the stratum increased. Stratum 73B underlay Stratum 73A throughout the cellar feature. However, the boundaries of Stratum 73B receded to just the northern half of the feature. The stratum's dimensions changed throughout its depth. Stratum 73B appeared to be a distinct deposition of fill.

Stratum 73C was dark brown (10YR3/3) silty loam, which was distinguished from Stratum 73B by high concentrations of ash, coal and clinker. Stratum 73C began roughly 11cm. below the beginning of Stratum 73B and continued for approximately 30cm in the southern portion of the feature. Stratum 73C was excavated in Levels I, II, III, and IV. The ashy deposits in this stratum contained a large amount of faunal remains, as well as food-related and architectural material. The boundaries of Stratum 73C receded to the south as its depth increased. Wooden planks that may have been the tent floor marked the bottom of this stratum.

Stratum 73D was very dark brown (10YR2/2) silty clay loam underlying Stratum 73C and overlying Stratum 73E. This stratum averaged 18cm. in depth, and it was densely filled with artifacts. Artifacts included: bed frames, sewing machine parts (leg) and food-related items. Stratum 73D was excavated in Level I and II. Stratum 73D was distinguished by high concentrations of ash without the presence of coal and clinker.

Stratum 73E was very dark gray (10YR3/2) sandy clay loam that averaged 25cm. in depth in the northern portion of the feature. Stratum 73E was excavated in Levels I, II, and III. Stratum 73E was overlain by Stratum 73B and 73D. The artifacts assemblage from this stratum was similar to the other strata, while their density decreased. The glass recovered from this stratum was particularly indistinguishable due to heavy melting. Stratum 73E ended at the floor of the cellar.

Stratum 73F was dark yellowish brown (10YR4/4) sandy loam that was the subsoil below the cellar floor. A 50cm. square by 20cm. deep unit was excavated to be certain that cellar boundary had been reached. One nail was recovered within a few centimeters of the floor surface. Otherwise, the soil was sterile and indicative of sub-soil in other portions of the site.

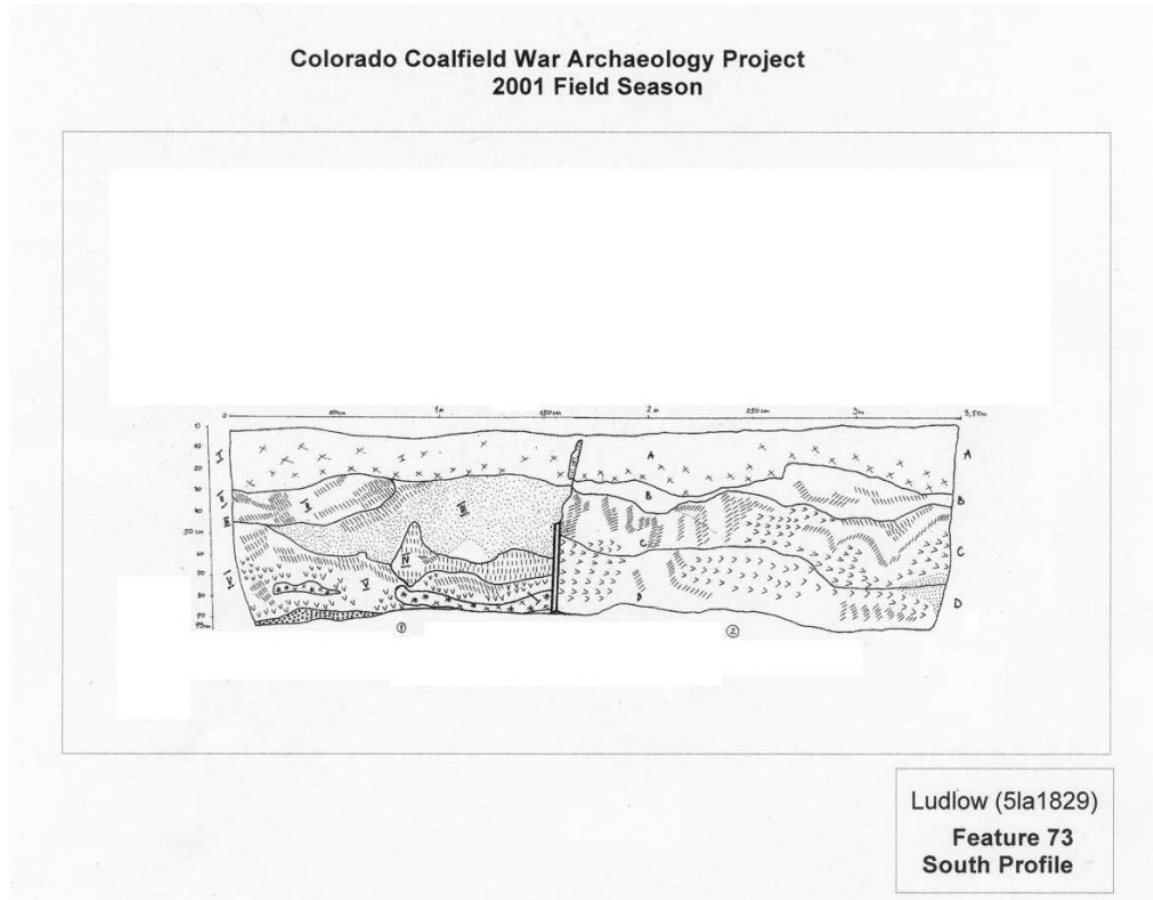


Figure 19: Stratigraphic Profile for Feature 73 in Locus 11, 2001 Field Season

Summary of Feature 73

Feature 73 was most likely a tent cellar given the household artifacts, and the size and shape of the feature. The context of the artifacts are not overly mixed and jumbled, but are more likely the result of a collapse of the tent on the surface. Feature 73, as a shallow pit, filled during the initial destruction with tent collapse filling the cellar. The early and fast deposition in the cellar allowed the walls to be protected from weather and slumping effects explaining the clear oxidation on the walls of the feature.

The condition and context of the artifacts in Feature 73 show the destruction of the Ludlow colony. The massacre's fire is evident through the large amount of burned wood, and melted glass. The oxidation on the floor and walls of the feature exemplify the intensity and overall presence of the fire. The artifacts appear to have collapsed into the cellar, after the fire had weakened the floor supports of the tent. Due to this collapse, the tent filled the cellar causing the cellar to collapse in itself. The collapsed feature allowed no major filling by surface refuse related to the overall massacre. Personal items still preserved through the fire and post occupational disturbances.

The depositional history also demonstrates that the artifacts found in that feature are directly associated with the tent and its inhabitants. Feature 73 are most likely related and unique to the cellar and tent of Feature 73. Although some artifacts may have secondary relation to the cellar and tent occupation, it can safely be interpreted that the

artifacts and material culture of Feature 73 reflect the occupation of the tent and associated cellar. Personal items are prevalent through each strata. Due to the deposition in the cellar, these items reflect the material culture of one tent and probably that of the family or individuals that occupied the tent. Although this cellar cannot be documented to a specific person, or people, it does provide an anonymous material perspective of those that did live in the tent and associated cellar.

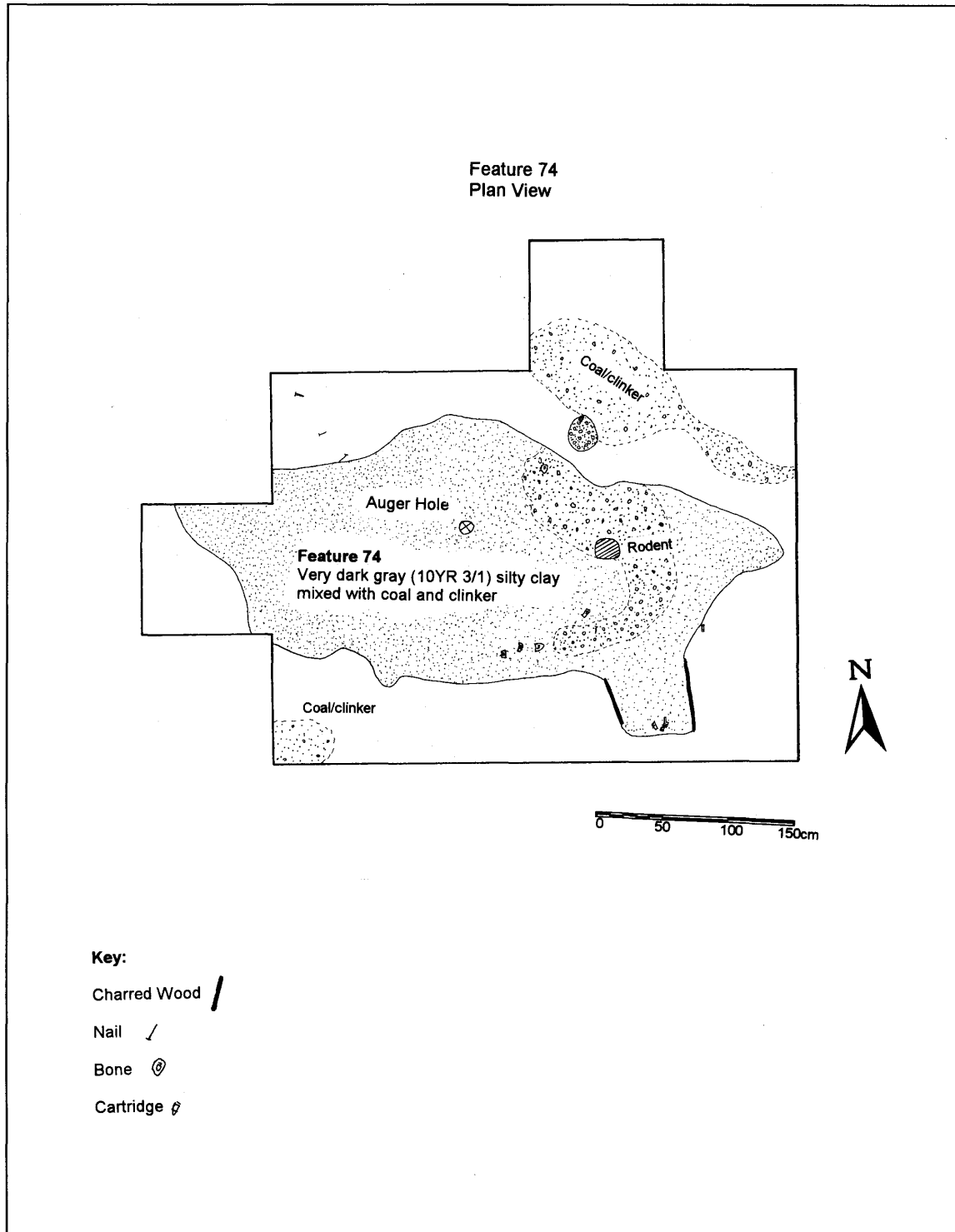


Figure 20: Feature 74, Plan View

12. Locus 12

Feature 74 was indicated on the surface by an oval patch of thick grass measuring approximately 2.5 meters N-S and 4 meters E-W. This growth actually corresponded roughly with the extent of the feature. The archaeologists tested it with a hand-auger, and eventually hit what appeared to be sterile soil at 1.6m below the surface. The auger encountered a dense artifact concentration right above the sterile soil, including ceramics, bottle glass, and a fork or spoon handle. Most of this material came out a single bucket. This feature was designated as Feature 74.

The project archaeologists fully exposed Feature 74 with an area excavation of 14 1m² units. This excavation revealed a stain measuring 4.5 meters E-W and 2 meters N-S. Feature 74 consisted of a very dark gray silty clay mixed with coal and clinker, and some ash and charcoal. There were artifacts within this fill. There were also scatters of coal and clinker on the surface of the surrounding natural soil.

Because of the large size and depth of this feature, project archaeologists excavated it over multiple years. Feature 74 was identified and the overburden was removed during the 1999 field season. The feature was then divided in half and the majority east half (except for the floor which was left in tact to excavate as a whole) was excavated during the 2000 field season and the west half and the entire floor was excavated during the 2001 field season. These will be discussed separately as they were excavated over multiple years.

Work in the 2000 field season concentrated on excavating the cellar, however due to it's large size and depth, the feature was bisected and excavated in quarters. The east half of the feature was the focus of the 2000 field season.

Stratigraphic Discussion of Overburden

The 1999 excavations did not test the feature, but simply removed the overburden to reveal the outline of the feature. The overburden consisted of two Strata, the rootmat (Stratum R) and Stratum A. Stratum R was about 3cm thick and Stratum A about 7cm. The area excavated was 14 meters overall.

Stratum R yielded 207 artifacts, along with 3g of tin can fragments. The artifacts were 45% unidentifiable glass (n=94), 16% bottle glass (n=33), and 8% food-related (n=16). Other than a fragment of a pharmaceutical bottle, none of the bottle glass was diagnostic. The food-related material was, except for a sherd of stoneware, all refined earthenware. Some other artifacts from this stratum were a bisque porcelain doll part, a safety pin, and two clothing snaps and a hook.

Stratum A contained 245 artifacts along with 11g of iron scraps. Unidentifiable glass (31%, n=76), architectural artifacts (22%, n=53), bottles (16%, n=39), and food-related artifacts (11%, n=27) comprised the bulk of the Stratum A assemblage. The architectural artifacts were predominantly nails (n=40), along with window glass (n=10), two screws, and a latch. Six of the nails were cut nails and the rest were wire. Two of the bottle glass sherds were from whiskey flasks, while the rest were not identifiable. The food-related artifacts consisted of 21 white refined earthenware sherds, one porcelain sherd, three stoneware, and two fragments of pressed glass. Other artifacts from this stratum included four unfired 0.44 caliber cartridges, two with bullets still inside. Two of these cartridges had legible headstamps, both "WRA CO WCF 44." The fifth cartridge

was a .32 caliber and headstamped "REM UMC ACP 3". The four clothing artifacts were two buttons, a snap, and a suspender part. One of the buttons was a copper alloy coat button embossed with an eagle and anchor and "HORSTMANN PHILADELPHIA". This is probably a military button, possibly naval. Also recovered were two possible stove parts. One may be part of a door and was marked "...NGE 141618." The other was a stove plate and embossed "3 Z."

Stratigraphic Discussion of the East Half

Feature 74 was bisected to logistically handle the artifacts and the recording of stratigraphy. The east half of the feature was excavated during the 2000 season in two quadrants, a northeast and southeast quadrant. The feature's bottom could not be identified, due to the lack of space in the excavation area. Archaeologists identified 5 stratigraphic layers.

Strata 74A, 74B, and 74C are interpreted lumped together here because they appear to be a jumble of contexts that have been mixed since the original occupation of the colony. This may perhaps be due to slumping or post-colony disturbance. Artifacts were more abundant than in Stratum D. However they were far fewer than Stratum E.

Stratum 74A is a 10YR 3/2 very dark grayish brown silty loam. It was similar to Stratum B, but was a bit lighter in color. It also contained a higher amount of artifacts and a bowl shape, suggesting a similar depositional history to Stratum B. Stratum 74A contained the most varied cultural material with an assortment of ceramic, metal, glass, burned wood, buttons, and bone. Stratum A had a total of 262 artifacts again with glass the most numerous at 39% (n=129) followed by metal at 1397.1 grams for undiagnostic metal and 34% (n=90) for architectural metal and nails, ceramics at 11% (n=30), and bone at 3% (n=9).

Stratum 74B was darker than both C and A strata. It is a 10YR 3/2 very dark grayish brown silty loam. Although there was less material culture the darker matrix suggests a cultural activity during the formation of this stratum. It was also in a bowl shape formed over Stratum C. It was most likely fill from natural deposition onto Stratum C. No artifacts were collected for Stratum 74B.

Stratum 74C is a 10YR 3/3 Dark Brown sandy loam, which was sandier than both stratum's B and D. This sand was what was used to identify and mark the borders of Stratum C. Artifacts in Stratum 74C included metal, leather, and glass at an increased amount to Stratum B that contained only some metal and glass. There were a total of 161 artifacts in Stratum C. Bullets dominated the collection at 38% (n=67). Glass was recorded at 11% (n=19). Undiagnostic metal measured in at 65.9 grams and architectural metal and nails recorded at 9% (n=16). Finally, bone was recorded at 3% (n=5), cloth at 17% (n=30), and ceramics at 23% (n=40). Due to the depth of Stratum 74C, it was arbitrarily divided into five (5) 10-centimeter levels. All levels were same soil description as noted above. Stratum 74C2 contained a heavy lens of coal and clinker. Otherwise the levels were uniform in description and artifact concentrations.

Archaeologists defined **Stratum 74D** as a silty loam with a color of 10YR 3/4 dark yellowish brown. This texture is similar to the surrounding natural matrix forcing excavators to ambiguously define the walls. Artifacts were contained in the stratum. The unrecognizable artifacts were low in density, especially in comparison to that of Strata B and E. Unrecognizable metal weighed in at 22.7 grams with architectural metal and

nails at 22% (n=28). Artifacts frequencies for bone were 38% (n=30), glass was 29% (n=23), and ceramics at 12% (n=10), and cloth was 16% (n=13). Stratum 74D was arbitrarily subdivided into two distinct levels because the stratum was fairly deep. Each level was approximately 10 centimeters deep. There was no difference in the soil makeup of Stratum 74D1 and 74D2. However, most of the artifacts were found near the bottom of stratum D in Stratum 74D2 and were possibly more closely associated with stratum E. It appears that the strikers deposited stratum D over the trash deposited Stratum E. Stratum D most likely was made up of the excavated soil from the construction of the cellar.

The deepest strata, **Stratum 74E**, is defined by heavy amounts of artifacts, second only to Stratum 74B. The stratum was also subdivided into 4 distinct but arbitrary levels due to the depth of Stratum E. Each level was approximately 10 centimeters deep. There was little difference in the matrix from top to bottom of the stratum. The matrix was a 10YR 3/3 light olive brown clay loam.

Stratum 74E1—There was a change in the soil in a line running from the west wall of the cellar to the east wall within this level. The soil changed from a 10YR3/4 medium gray silty loam to a 10YR3/3 dark gray clay loam. The majority of the artifacts were grouped in the western half of the quad with outliers in the eastern half. A large quantity of the highly corroded metal fragments were unearthed in the western half. Also present were pieces of burned wood, metal wire, nails, a whole can, metal pot, a sealed preserving bottle with residue, and an intact liquor bottle.

Stratum 74E2—this level was heavily concentrated with artifacts. The soil resembles that of the west half of the preceding level.

Stratum 74E3—In this level excavators believe to have uncovered a small portion of the floor of the cellar based on oxidation stains. There was also clean fill found between the artifacts. Artifacts of note in this level include a bullet cartridge and a metal grill.

Stratum 74E4—The soil appeared to have filled in gaps between artifacts during a cultural dump episode as the site was being cleaned after the massacre. They determined the floor present due to an apparent end of artifacts and a color change in the soil. Areas of oxidation were present and areas of insect burrowing were also noted.

Summary of Stratum 74E—The features boundaries were defined at the shallower layers by a lack of artifacts, and near the bottom by an oxidized boundary. There is no apparent order to the artifacts, and the artifacts do not seem to be in primary deposition. Most likely these artifacts were deposited in an expedient fashion, and not in any definite pattern. There were a total of 168 artifacts found in all levels of this strata, with metal and ceramic artifacts being the most numerous. 99.9% of the metal found was associated with architecture. Most of the metal is rust and not readily identifiable, but some artifacts, such as a coffee pot and a kerosene can were evident. Metal artifacts are dominated by unrecognizable metal weighing in at 1291.6 grams with architectural metal at 20% (N=33). Ceramics were most abundant at 64% (N=108). The rest of the main categories of artifacts were minimal in comparison with the metal and ceramics-glass 9% (n=15), bone 2% (n=4), cloth 4% (n=6), and bullets 1% (N=2). The boundaries of this stratum were fairly abrupt, with oxidation marking the eastern wall.

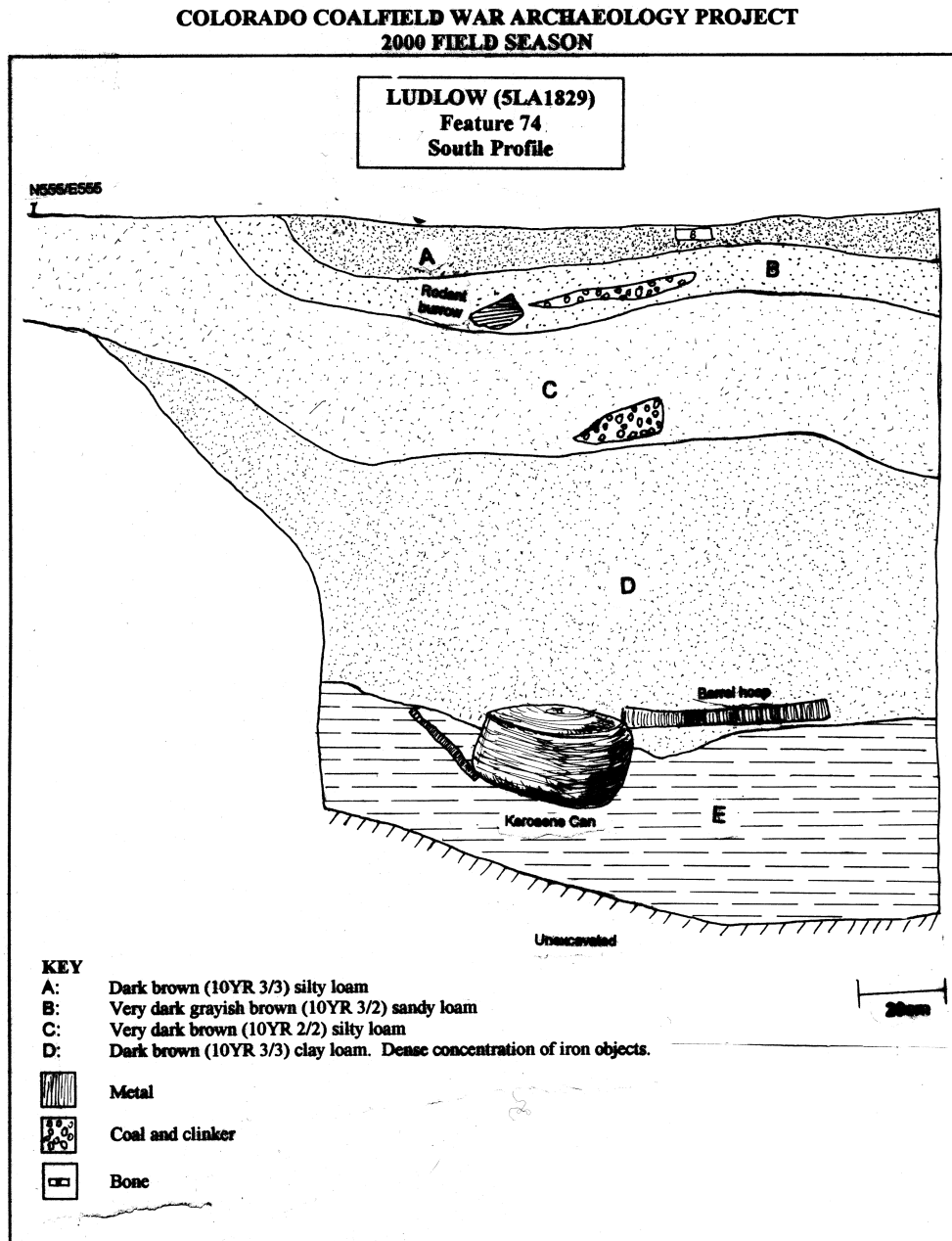


Figure 21: Feature 74 in Locus 12 Stratigraphic Profile, 2000 field season

Stratigraphic Discussion of West Half

Excavation of Feature 74 proceeded in the 2001 season. The large size of the feature and the high density of artifacts led to a slow excavation of the feature. The sectioning of the feature had helped during the 2000 season in recording provenience. However, it hindered excavation efforts. Archaeologists had to change methods to allow the feature to be fully excavated and interpreted. Instead of quartering the feature as done in 2000, the halves (east and west) were excavated as a whole. Excavators finished with the east half of the feature and began and finished the west half (see *Figure 22*)

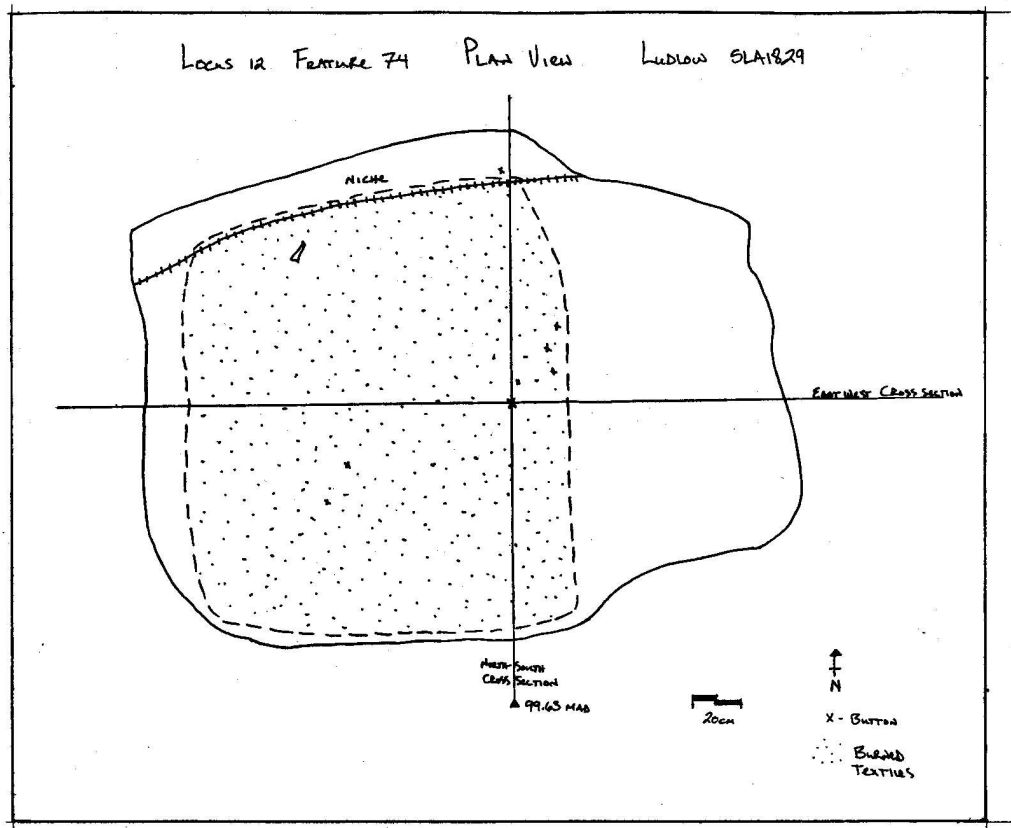


Figure 22: Plan view of floor of Feature 74 in Locus 12, 2001 field season

Excavators recorded seven layers in feature 74's stratigraphy. The top three layers had few artifacts. Aeolian deposits continued to fill the shallow depression left by Feature 74 forming into **Stratums 74A, 74B, and 74C**, the limited vegetation caught sediments from wind, and washed in from rain. Stratum A consisted of (10YR3/2) very dark, grayish brown silty loam. Stratum B was (10YR2/2) very dark brown silty loam. And Stratum C was (10YR3/3) very dark grayish brown silty loam with grainy inclusions. Treasure hunters, visitors and transients may have created the post-occupational deposits found near the surface of the feature. Post-strike cattle ranching further altered the archaeological landscape. Strata D and E were divided into 10-centimeter arbitrary levels due to their depth (each were approximately 55-75 centimeters

deep). This division helped control the provenience of artifacts recovered. Each stratum and level will be described below.

Stratum 74D1 covered the trash filled layer. Due to the thickness of the Stratum D (approximately 10 centimeters), it was divided into three approximately 20-centimeter levels. Stratum D1 was a relatively clean layer with few artifacts. The sediments were similar to the natural sediments (10YR2/2, very dark brown silty loam mixed with coal and clinker). However, this stratum had a higher clay content than the previous. Artifacts of note included: a telephone dial and a metal stove part. The stratum appeared to be the matrix originally removed in the construction of the cellar, but reused in the cellar to seal the trash pit.

Stratum 74D2 was (10YR3/2) very dark grayish brown silty loam. There was a reasonable spread of metal throughout the layer both in the form of undistinguishable and nails. Very few ceramics and glass were found but there was a small quantity of leather and bone.

Stratum 74D3 was recorded as 10YR3/2 very dark grayish brown silty loam. Sixty grams of unrecognizable metal was recorded. Other artifacts include the typical nails, ceramics, glass, leather, bone and a button.

Stratum 74D4 also registered as 10YR3/2 very dark grayish brown silty loam. Stratum D4 went directly into Stratum E on the north side. On the south side Stratum D required a final level before reaching Stratum E. Artifacts reflected the same classes and amounts as previous levels in Stratum D.

Stratum 74D5 was 10YR3/2 very dark grayish brown silty loam. This level is consistent with the other levels in Stratum D. Stratum D5 goes lower in the south quadrant than the north, where it is mostly absent. The cultural material was also consistent with that found in previous levels of Stratum D.

Stratum 74E1 (was the main layer of debris and refuse secondarily deposited after the massacre. The soil (10YR3/2) very dark grayish brown but had a much higher concentration of ash and darker soil included. It is a deep layer with a heavy amount of trash items, the most prominent being a sub-layer of cans and other assorted metal artifacts. There were 220 grams of unrecognizable metal found in this level. The heavy amount of metal was so great that with rusting the layer seemed to be fused. Objects of note in this level include a partial thermometer and ceramics with Globe maker's mark.

Stratum 74E2 was (10YR3/3), dark brown silty loam. 5380 grams of unrecognizable ferrous metal was recorded for this level. Fewer overall artifacts were recovered, however there was a higher percentage of larger and whole artifacts in this level than in previous ones. Other objects recovered from this level include brush bristles, metal wire, a kerosene can, stove parts, part of a shovel, coffee pot, and several pieces of burned wood.

Stratum 74E3 was (10YR3/2) dark grayish brown silty loam with heavy amounts of coal, clinker and ash. Burned planks were evident in the north part of the excavation area. The burned planks appear to be in situ with some oxidation suggesting roof collapse. 4170 grams of unrecognizable metal was recorded. There was a high concentration of artifacts in this level. Artifacts recovered include: cuff link, wood, bullets, pill bottle, horse shoe, candle, comb, spoon, some fabric, a frame, and an alarm clock.

Stratum 74E4 was (10YR3/2) dark grayish brown silty loam. Again this level included a heavy concentration of artifacts and some burned and oxidized planks. Artifacts included: a frying pan, bottle with cork, textiles, button, barrel hoop, pot, and stove parts.

Stratum 74E5 was also (10YR3/2) dark grayish brown silty loam with a heavy concentration of artifacts like the previous levels. Unidentified ferrous metal measured 6920 grams. The lower portion of the fill was lighter in artifacts, which included: a bucket, metal door, textiles, bed frame, a canister, and many tin cans.

Stratum 74E6 again was (10YR3/2) very dark grayish brown silty loam. Unidentified ferrous metal measured 40,420 grams. Artifacts were heavy at the top of the level and at the south portion. The fill was bound by yellowish natural soil matrix at about 20 centimeters above the floor with relatively clean fill. Artifacts in this level included: pan lid, barrel hoop, pipe stem, pan, leather, egg shell, spoons, clock, cartridges, and a water pitcher.

Stratum 74E7 was once again (10YR3/2) very dark grayish brown silty loam. This level had fewer artifacts and directly covered the floor. Artifacts of note include: a pick axe, knob, spring, cup, wire, textiles and a button.

Stratum 74E summary—Three to four coffee pots and alarm clocks were found in this stratum overall, as well as the headboard and large amount of cooking and can refuse. The preponderance of cans in this stratum suggests that it was not directly associated with the surface tent and deposited later or that occupants of the tent canned goods for sale or trade. However, the abundance of other artifacts suggests that the former is the more likely interpretation. The artifacts of this layer have an erratic positioning that suggests limited to no relation to the surface tent. The repetition of items that would normally be single within a single household, such as coffee pots and alarm clocks, as well as their erratic positioning suggest that artifacts here were secondarily deposited and represent more than a single household.

Stratums 74E2-4 were interpreted as transitional layers identified as either tent floor or cellar roof fall. The soil was (10YR3/3) dark brown silty loam. This level had more variety of artifacts and a larger number of whole artifacts, such as bottles and cans than the previous levels and strata, but fewer in number. Burned timbers were aligned in a collapsed pattern with boards for the most part mixed together, overlapping, and gaps between timbers were filled with clean sediments matching the natural surface layers. Oxidized soil was mixed in the roof/floor fall and timbers. The mixed nature of the roof/floor collapse supports the construction methods identified in the photographic landscape and discussed above. The heavy amount of soils mixed with timbers suggests that a relatively large layer of soil was used to cover the timbers and fell with the timbers during the fire. The oiled cloth also adds credence to such a construction. It was not originally laid on the floor of the cellar but fell onto it most likely during the fire, as it was folded, bunched and incompletely covered the floor in an even way. If owners draped the cloth under the timbers and drenched it with oil, it may have acted as a way to keep dust from falling from a cellar roof, covered with dirt.

The bottom layer was a dirt **74floor** lined with an oil-drenched cloth that covered almost the entire cellar floor surface. Few primarily deposited artifacts were located on the floor, except a small medicine bottle and buttons, including a set of four buttons appearing to be in alignment and the remains of a shirt or blouse. The cellar was a

keyhole like shape, with a large top and small cut in the East. Inhabitants probably used this cut for a stairway. Oxidation defined the lower portion of the walls. Above 20-50 cm below the surface oxidation ends, and is fused with the natural sediments.

Summary of Feature 74

This feature is also interpreted as a cellar. However, differences between the two cellars (Features 73 and 74) are obvious and require different interpretations. The artifact quantities suggest a depositional history different than Feature 73. The lower strata are mostly filled with metal associated with architecture. Very little material related to domestic or food usage is present. The frequency of artifacts change higher in the feature, but food usage is still not as abundant as in Feature 73. The low proportion of domestic to architectural goods in Feature 74 suggests a possible single dump episode of architectural material after the camp had burned and during the subsequent clean-up. Post massacre, the majority of the remains of the colony would most likely be that of architecture on the surface. The cellars would act as a readily accessible pit for dumping by the massacre survivors and the Red Cross.

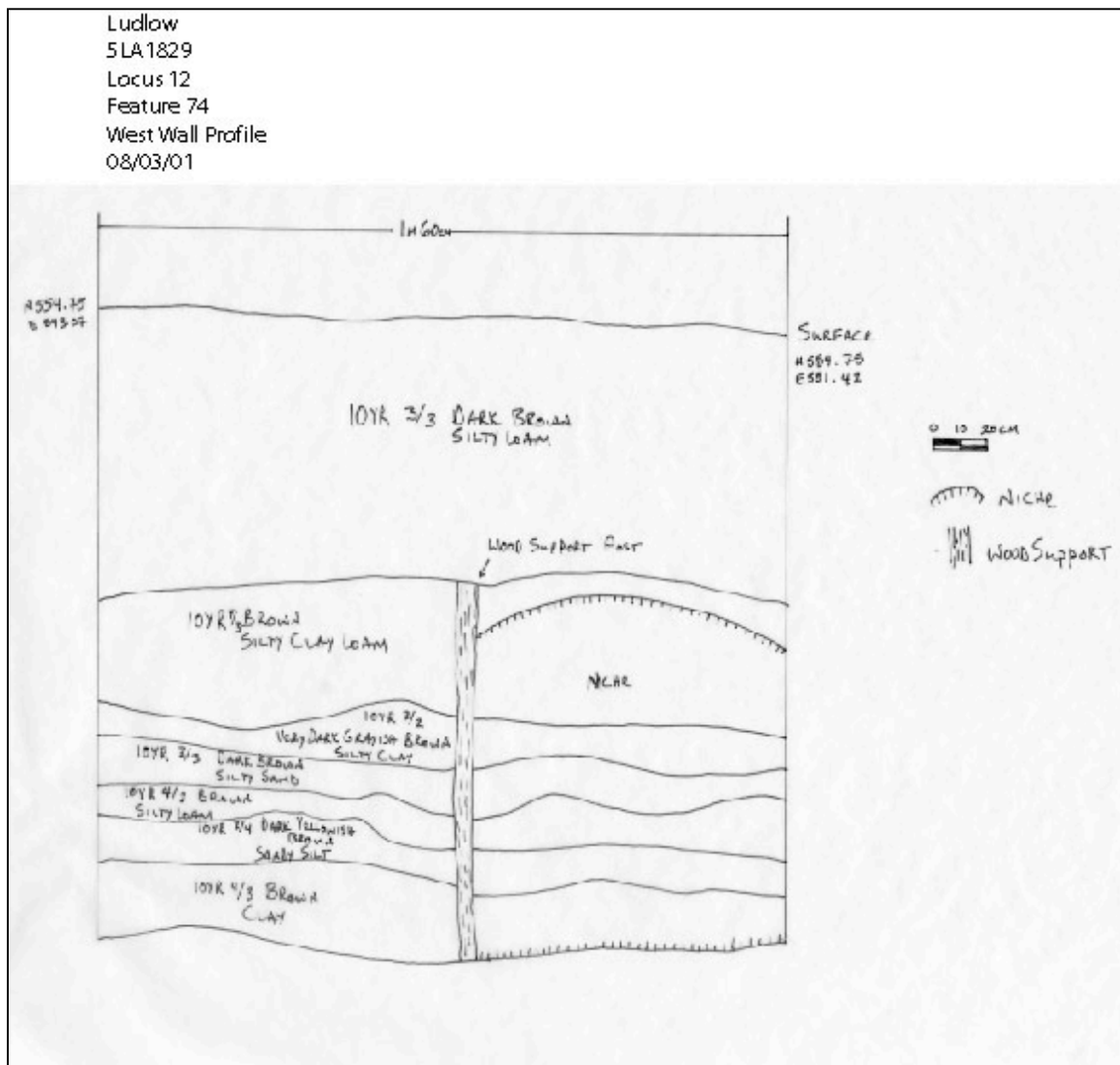
The cross-colony refuse associated with Feature 74's destruction gives evidence of secondary context for the material associated with Feature 74. The varied materials comprised mostly of cooking (coffeepots, possible stove, and pans) and bedroom (headboard) materials suggest a household use for the tent. The materials are not complete. The headboard has no associated bed frame and was not primarily deposited from the surface tent. The multitude of unique items is also problematic for establishing the primary context of artifacts in feature 74. Three coffee pots and three alarm clocks were found in the lower layers of the pit, as well as cooking items much more numerous than the average striking family would probably need. Heavy oxidation at the base of the walls of the feature, about 20-50 centimeters from the floor, further supports the hypothesis of collapse. The rest of the cellar remained open for a period and was subject to weather induced wall slumping as well as to cultural deposits from trash disposal.

The shape of the profile also suggests a different depositional history for the upper strata than the lower strata. Slumping of the cellar walls in Feature 74 is more evident than in Feature 73. With a depth of more than 2 meters, it had a different depositional history than the shallower Feature 73- cellar. Feature 74's increased depth as compared to Feature 73 made it more vulnerable to outside influences, both cultural and natural, and hindered its preservation.

The three upper strata (A, B, and C) are shallower and have a bowl shape that levels off into Stratum A. This suggests an Aeolian deposit of sediments and possible filling by post-strike occupation or from the second colony inhabitants. Post strike activities, such as ranching, and occupation from the second colony on the site most likely affected the site formation for these three higher strata. The lower strata also exhibit differences in deposition from those observed for Feature 73. The strata are more uniform and much thicker. The overall size, shape, and depth of the feature signify a larger structure than Feature 73 and could reflect a larger tent structure over top or subsequent widening to accommodate post-massacre clean-up. The oil drop-cloth floor is original to the structure as used as a cellar and in tact, suggesting that the cellar was not deepened to accommodate trash during the clean-up.

Interpretation of the feature did not alter in its basic premise that Feature 74 had acted as a cellar during the strike. After the massacre, the cellar's size had made it a ready trash pit. The large depth meant surface refuse related to the tent above could not fill the cellar. Strikers filled the remaining pit with surface refuse from the first colony. Linking material culture to that of individual family or person was impossible. Analysis was more keyed into community material culture rather than individual. Interpretation changes came more in the understanding of the construction of the cellar. The increased size of the feature meant that archaeologists could see more of the construction processes than in smaller features like Feature 73.

Figure 23: Profile of Feature 74 in Locus 12, 2001 field season



13. Locus 13

A large surface area of Locus 13 was excavated in an effort to locate tent pads and/or cellars (see *Figure 6*). Historic photos indicated that Locus 13 was located in a high concentration of tents in the northwestern part of the colony. During the 2000 and the 2001 field seasons a total of 152m² units were excavated in Locus 13. Four possible tent pad features were exposed (F77, F78, F99, F100). The units will be described as they relate to associated features.

Excavations in Locus 13 (see *Figure 24*) focused on confirming the presence and locations of tent footprints projected to be in the area based on matching historic photos of the Ludlow colony to the present landscape. Goals for work in this area also included recording the remains of tents that showed clear evidence of destruction by fire, and sampling the artifact assemblages from such tents. Shallow area excavations in three areas of locus 13 located evidence of at least four tent features as well as many other associated or unassociated features. Approximately 19 of these associated or unassociated minor features were recorded in this locus. The first major tent feature to be identified was designated Feature 77 and the second was Feature 78, both possible tent outlines. These two were found during the 2000 field excavations. Evidence of other possible tents near Feature 78 were located later in the season and designated Features 83 and 98, however, these were never fully excavated. During the 2001 field season an additional tent outline, Feature 99, and possible associated drip line or additional tent, Feature 100, were uncovered to the northeast of Feature 77. In this section the 19 other associated and unassociated features will be discussed first then the possible tent features will be discussed in greater detail.

Stratigraphic Discussion

The stratigraphy of Locus 13 and corresponding features was shallow and uncomplicated. The ground surface at this part of the site is particularly level, and any site disturbance has been the result of trampling by cattle. The identified tent pads were close to the surface, ranging between 2-10cm. in depth. We removed the overburden as two strata: Stratum R (the rootmat) and Stratum A. Most of the features were identified in Stratum A (see *Figure 25*). Stratum B was also excavated in some units by produced few artifacts.

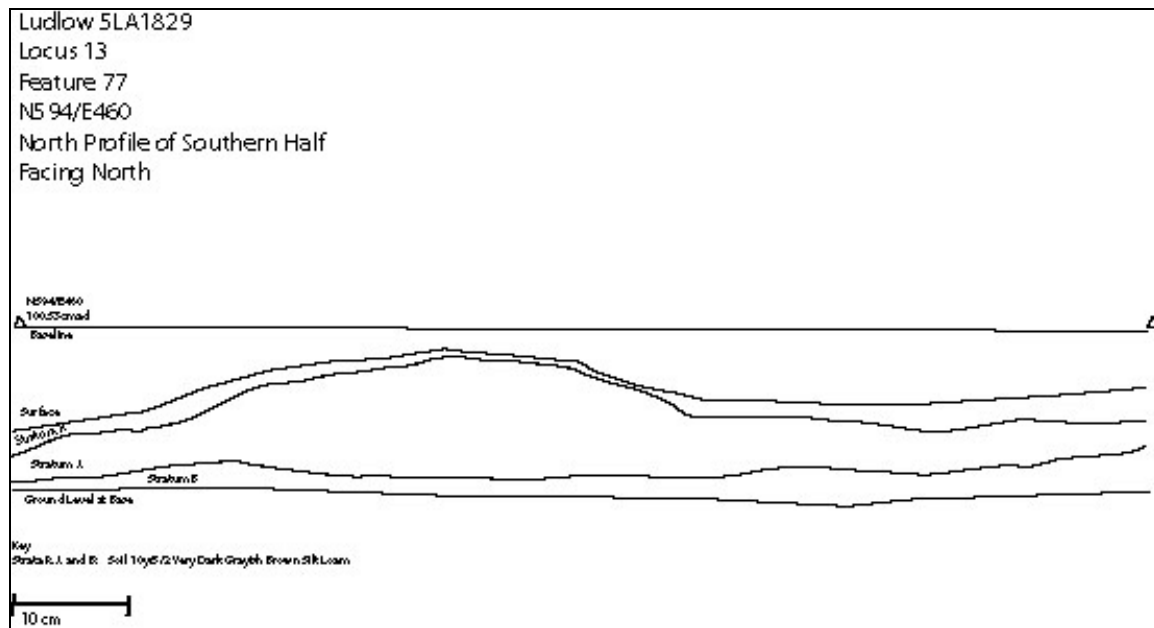


Figure 24: Stratigraphic Profile for Locus 13, Feature 77, 2001 field season

The following units were excavated, but did not reveal sub-surface features: N596/E470, N596/E472, N600/E450, N600/E452-E459, N601/E450, N602/E449, N605/E452-454, N606/E452-E454. There was very little variability in their stratigraphy and will be discussed generally, as a result.

Stratum S was the ground surface and surprisingly yielded a number of artifacts (n=419). Food-related items dominated the artifact assemblage (89%, n=371): can fragments (18 gm.), ceramics (59%, n=246), faunal (n=1), and glass (25%, 104). Architectural items (10%, n=41) were mostly nails (9%, n=36). The artifacts from the surface tended to be small and highly weathered.

Stratum R, the rootmat, was very dark grayish brown (10YR3/2) silty loam, and it was between 1 and 5cm deep. Considerably more artifacts (n=1314) were found in this stratum than at the surface. Food-related items (86%, n=1127) were predominate: can fragments (42.6gm.), ceramics (48%, n=635), faunal (n=2), and glass (34%, n=446). One ceramic sherd was recovered with the maker's mark, "Homer Laughlin." The next largest artifact group was the architectural category (60%, n=792), which included 100 nails (8%). The remaining assemblage consists of clothing (1%, n=11), personal items (n=7), and bullet/cartridges (n=2). A belt buckle with the engraving "Shirley President" was excavated.

Stratum A was very dark grayish brown (10YR3/2) silty loam and averaged between 1 and 5cm. in depth. Stratum A and Stratum R do not appear to be different soils except for the root mat. The artifact assemblage (n=2454) from Stratum A was similar to the previous strata. The food-related items (74%, n=1822) consisted of can fragments (22.3 gm.), ceramics (48%, n=1170), faunal material (1%, n=26), and glass (23%, n=556). Another ceramic sherd with the "Homer Laughlin" maker's mark was excavated. Architectural remains (23%, n=553) were predominately nails (16%, n=403). The clothing items (2%, n=41) included 5 buttons. Personal material (n=12) and

bullet/cartridges (n=7), including a steel jacketed slug, comprised the rest of the assemblage.

Associated Features to Possible Tent Features

Other features were found in the area of Feature 77 and may have an association with the tent platform (see *Figure 24*). **Feature 80** is described as an oval shaped structure immediately west of Feature 77, defined based on the presence of a moderate concentration of coal and clinker within a 10YR 3/2 silt loam. Feature 80 measures 49 cm along its east-west axis and 70 cm at its maximum north-south extent. It has no apparent interpretation. **Feature 81** has an irregular shape of intensely oxidized soil (7.5YR 2.5/2 – 10YR 2/2) in a matrix of silty clay loam with light concentrations of coal and clinker. An irregular area of moderately concentrated coal and clinker in a matrix of 10YR 3/2 silt loam was identified by excavators as **Feature 82**. It was only partially exposed in units to the west of F77. These features ambiguous form and non-definitive structure give no ready interpretation except some probable association with Feature 77.

A distinct but clearly associated feature of Feature 78 (**Feature 78a**) lies in the NW corner of Feature 78 and is characterized by the presence of compact soil and very dense concentrations of finely crushed coal and clinker (see *Figure 24*). Many oxidation (burned) stains were found in association with Feature 78 as well, most concentrated in the southern half of the feature. Some of these stains occur in soils within the fill of Feature 78, suggesting that at the time of the fire the trenches had already been filled, perhaps by siltation. A number of smaller features, possibly post-holes or rodent burrows were also identified in and around Feature 78 (see *Figure 24*). Two of the larger and more post-hole-like of these features (**Feature 78b and c**) were located within the fill of Feature 78, suggesting that posts may have been placed in the trenches around the tent and only removed after the trenches themselves had been filled.

Some additional features in the area of Feature 78 offered an ambiguous analysis similar to those found near Feature 77. **Feature 84** is located at N608/E449-450 and is a roughly rectangular feature composed of a dense concentration of coarse coal and clinker in a matrix of 10YR 3/2 sandy silt loam (see *Figure 25*). It was only partially exposed during the 2000 season, lying immediately north of the northern trench of F78. **Feature 88**, at N608/E455, is a moderate concentration of coal and clinker in a matrix of 10YR 3/2 sandy silt loam. The feature is irregularly shaped with maximum dimensions of 30 cm east-west and 27 cm north-south. Feature 88 is located between the northern leg of Feature 78 and Feature 98, and slightly west of Feature 89 (see *Figure 24*). **Feature 89** is a dense concentration of finely crushed coal and clinker in a 10YR 3/2 sandy silt loam matrix. Maximum dimensions are 15 cm east-west and 17 cm north-south. The feature is between the northern edge of Feature 78 and Feature 98, and immediately east of Feature 88 (see *Figure 24*). It is reminiscent of a possible posthole or rodent burrow.

Posthole Features or Rodent Holes

The rest of the features of Locus 13 are probable postholes or possible rodent holes (see *Figure 24*). **Feature 85**, located N604/E453, is a small, circular structure of densely concentrated, finely crushed coal and clinker in a matrix of oxidized 7.5YR 2.5/2 sandy silt loam. The feature's maximum dimensions are 13 cm E-W and 15 cm N-S. It is a possible posthole. A similar feature to that of Feature 85 is **Feature 86**, located

N604/E454, it is also a small circular concentration of dense, finely crushed coal and clinker in a matrix of 10YR 3/1 silt loam. Maximum dimensions of Feature 86 are 10 cm E-W and 10 cm north-south. Due to its shape and size, it is probably a posthole or a rodent burrow. Another possible posthole or rodent burrow is **Feature 87** located at N604/E455. It is a small circular concentration of dense, finely crushed coal and clinker in a matrix of 10YR 3/1 silt loam. Maximum dimensions of Feature 87 are 10 cm east-west and 10 cm N-S. Located at N610/E455, **Feature 90** is a small oval shaped deposit of dense, finely crushed coal and clinker in a matrix of 10YR 3/2 sandy silt loam. The maximum dimensions of F90 are 22 cm E-W and 13 cm N-S. The feature is situated at the northern margin of F98. Similar to the other rodent burrows is **Feature 91**, but is oblong rather than oval. Its matrix is composed of dense, finely crushed coal and clinker in a matrix of 7.5YR 2.5/2 silt loam. Maximum dimensions for Feature 91 are 22 cm east-west and 14 cm north-south. The feature is located in a zone of sterile subsoil to the north of the southern edge of Feature 78. It is immediately west of **Feature 92**, which is located at N602/E454. It is a small circular area of dense, finely crushed coal and clinker in a matrix of 7.5YR 2.5/2 silt loam. Maximum dimensions for Feature 92 are 15 cm east-west and 9 cm north-south. The feature is located in a zone of sterile subsoil to the north of the southern edge of Feature 78.

The excavators found five other postholes in Locus 13: **Feature 93** (N600/E451)- an oblong structure containing a dense concentration of finely crushed coal and clinker in a matrix of 10YR 3/2 coarse silt loam Measuring 20 cm at its maximum east-west extent and 10 cm along its north-south axis. The feature falls outside the area enclosed by Feature 78 and is within 25 cm of Feature 94. **Feature 94** (N600/E451)- a circular structure distinguished from the surrounding matrix based on the presence of 10YR 3/3 sandy silt loam. The feature fill contains no coal and clinker. Maximum dimensions are 10 cm east-west and 10 cm north-south. **Feature 95** (N600/E454) is characterized by a dense concentration of finely crushed coal and clinker in a matrix of 2.5Y 3/3 sandy silt loam. Maximum dimensions are 10 cm east-west and 8 cm north-south. It is located outside the area enclosed by Feature 78 and is immediately west of Feature 96. **Feature 96** (N600/E454) is composed of densely concentrated, finely crushed coal and clinker in a matrix of 2.5Y 3/3 sandy silt loam. Maximum dimensions are 14 cm east-west and 10 cm north-south. The feature is located outside the area enclosed by Feature 78 and is immediately east of Feature 95. **Feature 97** (N605/E448-449)- the feature is defined by the presence of dense, coarse coal and clinker in a matrix of 10YR 3/2 sandy silt loam. Maximum dimensions are 14 cm east-west and 10 cm north-south. The feature is between F78's western trench and F83 in a zone of sterile subsoil.

Possible Tent Features

Features 78, 83 and 98

Excavators identified **Feature 78** (Figure 24) near one of the projected tent locations derived from a historic photo of the tent colony. It is rectangular in overall plan and consists of a series of trenches containing dense to moderate concentrations of coarse coal and clinker. The primary feature also includes a semi-circular structure extending into the area enclosed by the outer trenches. Taken as a whole the feature encompasses an area of approximately 6 m by 7 m, oriented 30 degrees W of Grid N. Feature 78 was

sampled within one unit and found to be a relatively shallow (approx. 15 cm below surface) trench, dish-shaped in profile, that had been carved into the surrounding soil and later filled with coal and clinker. Based on previous excavations around tent locations in Locus 1, these trenches are interpreted as shallow ditches dug by residents of the colony to channel water away from the corners of their tents. Alternatively, they may be drip lines eroded into the soil by the action of water running off tent roofs. In either case, the archaeologically defined trenches are clearly indicators of former tent locations within the colony.

Artifacts recovered from the area around Feature 78 included many of the same items described above in the context of Feature 77. Artifact densities varied considerably across the area encompassed by Feature 78, but in several units, nail densities were as high as 15 nails per sq. m. Densities of charred and melted glass and ceramic were also quite high in several units. Specific to Feature 78 were a group of large brass tent grommets, furniture parts, a number of suspender (clothing) fasteners, and a small but intact medicinal vile.

Two major features resembling Feature 78 were also partially exposed (Feature 83 and Feature 98) at the edges of the 2000 excavation area, and both appear to run parallel and perpendicular to the axes of Feature 78 (see Figure 24). **Feature 83** is a zone of moderate concentration of coal and clinker within a matrix of 10YR 3/2 sandy silt loam partially exposed to the N and W of Feature 78. Feature 83 abuts Feature 78 and may be a tent trench/drip line associated with a neighboring structure. **Feature 98** is similar to Feature 83 in that it is an area of moderate coal and clinker in a matrix of 10YR 3/2 sandy silt loam. The feature was only partially exposed in the 2000 season, located at the northern limit of excavations in Locus 13. This feature may represent the southern-most extent of a tent that abutted the tent area defined by Feature 78. These features may indicate the presence of neighboring tents to the north and west of Feature 78.

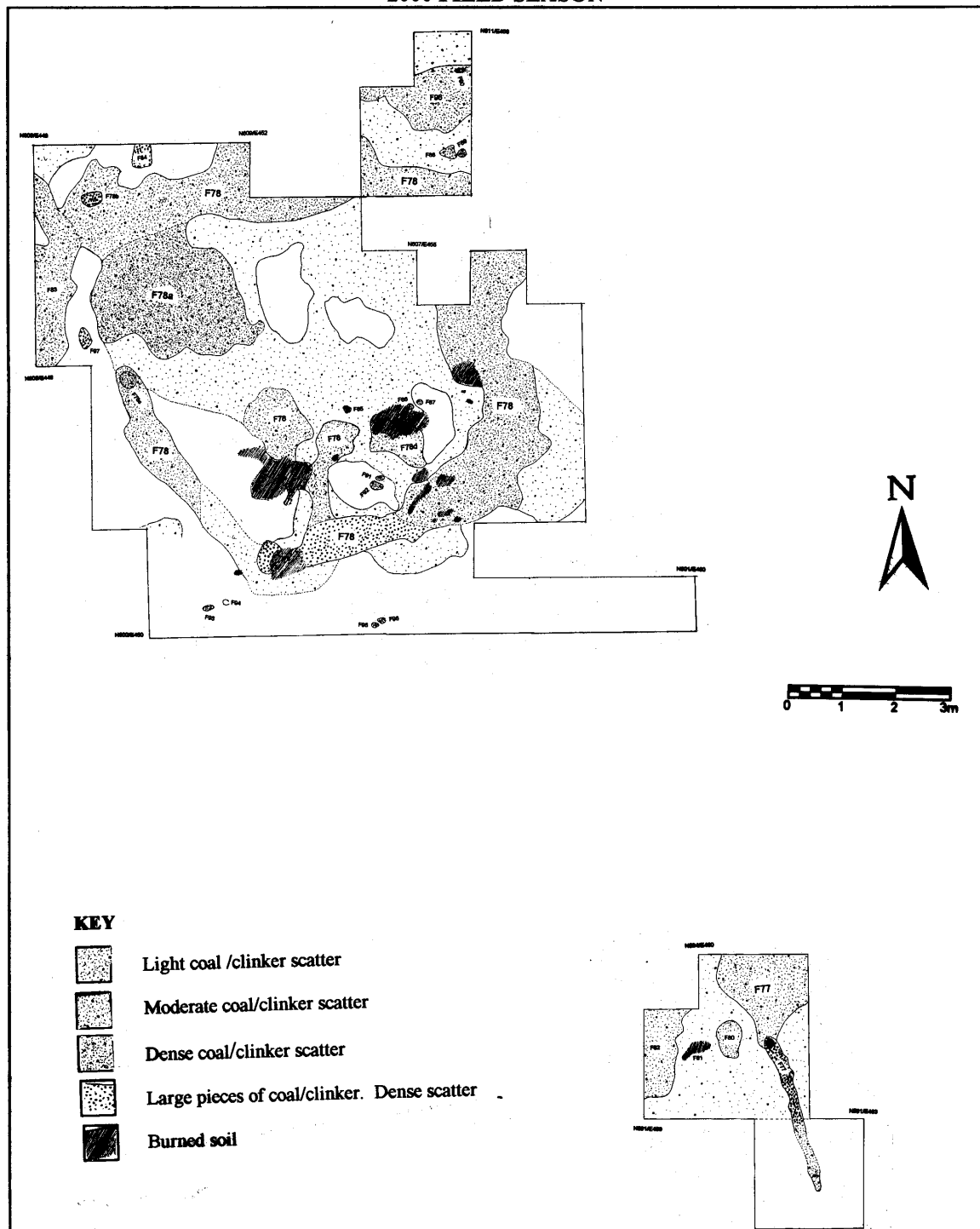


Figure 25: Locus 13, Features 77 and 78, 2000 field season

Feature 77

During the 2000 field season, we excavated 13m² units, uncovering **Features 77 and 78**. We originally interpreted these features to be a single tent pad, however, which proved false. Feature 78 was completely excavated in 2000 as discussed above, but

Feature 77 was discovered toward the end of the field season. The following season, 2001, an additional 31m² units were placed in the same area in an effort to define the boundaries of the feature (see *Figure 26*). The following units are associated with Feature 77: N586/E456, N587/E456-E460, N588/E456-E457, N588/E461-E463, N589/E455-E456, N589/E460-E463, N590/E456-E457, N590/E461-E462, N591/E456-E461, N591/464-E465, N592/E458-E461, N593/E458-E461, N593/E463, N594/E458-E462, and N594/E464.

Feature 77 (*Figures 24 and 26*) was associated with a dense surface scatter of metal (predominantly nails) and other common artifact types (glass and ceramic). Careful excavation revealed a linear trench feature filled with moderate to dense concentrations of coal and clinker as well as patches of charred wood. This feature appears to extend north beyond the area exposed during the 2000 season, but was only partially exposed due to a desire to concentrate efforts on Feature 78. By the end of the season, Feature 77 had been revealed as a linear coal and clinker concentration. The feature was clearly visible in a line heading NE/SW at about a 10-20 degree angle off grid north and was about 3 m in length.

Small areas of oxidized soil, stained in colors from red to black due to exposure to intense heat, were also found in association with Feature 77. These oxidation stains, along with the charred wood in the fill of Feature 77 provide material evidence that the tents in the vicinity of locus 13 were probably burned during the 1914 massacre. Artifacts recovered from the area around Feature 77 included small construction debris (such as nails and other metal structural elements), ceramics, burned and melted glass, and metal clothing fasteners (such as buttons and grommets).

Stratum 77S, the surface, had a total of 303 artifacts, which consisted predominately of food-related items (92%, n=280): can fragments (4 gm.), ceramics (22%, n=68), and glass (68%, n=206). Architectural remains (8%, n=23) included nails (2%, n=5). Personal (n=2) and clothing (n=2) artifacts completed the artifact assemblage.

Stratum 77R, which was the root layer, was very dark grayish brown (10YR3/2) silty loam and averaged between 1 and 5cm. in depth. As is consistent with the rest of the site, food-related artifacts (83%, n=444) dominated the total assemblage (n=537) for this stratum. The food-related items included can fragments (20 gm.), ceramics (28%, n=149), and glass (52%, n=280). Nails (6%, n=30) were the dominated artifact in the architectural group. The clothing group (4%, n=23) included 3 buttons, one of which had an etched train design. Additionally, 3 bullet/cartridges and 3 personal items were excavated.

Stratum 77A, which underlay Stratum 77R, was very dark grayish brown (10YR3/2) silty loam and averaged between 1 and 5cm. in depth. The excavated artifacts (n=713) from this stratum consisted mostly of food-related material (80%, n=570): can fragments (9.9 gm.), ceramics (42%, n=303), faunal remains (n=2), and glass (35%, n=249). The architectural material (16%, n=112) was composed primarily of nails (11%, n=76). The clothing group (3%, n=23) included 4 buttons. Few bullets/cartridges (n=2) and only 2 personal items, which included a 1/4" bone bead, were recovered from this stratum.

Stratum 77B contained the tent pad imprint, which was distinguished by particles of coal and clinker and a distinctively different soil, in terms of color and texture. Stratum 77B underlay 77A. The soil outside the imprint was dark brown (7.5YR3/2) silty clay

loam and very dark grayish brown (10YR3/2) silty loam. Stratum 77B averaged between 1 and 5cm. in depth. This stratum revealed the feature (tent pad foot print). The number of artifacts (n=26) from this stratum was greatly reduced from the previous strata. Food-related remains (85%, n=22) consisted of ceramics (8%, n=2) and glass (77%, n=20). Architectural material (12%, n=3), which was mostly nails (3%, n=2), comprised the remaining identifiable artifacts.

Summary of Feature 77

The feature is visible just below the root mat, so excavations were very shallow, excavated to between 5 to 7 centimeters below the present ground surface. Feature 77 turned a corner to the west and the north end and extended about 1.5 m to the SW from the corner. However at that point it faded out and became difficult to follow. At the south end of Feature 77 as exposed in 2000, we found no evidence of the feature, however we did notice a lot of ant-disturbed soil. Based on what evidence we do have, the area that should have been the inside of the tent did contain items consistent with that evaluation—small personal effects including grommets and small pieces of glass and ceramics. There were a few nail alignments in the south and west of the excavated area and a few nail concentrations, but nothing consistent over a large area.

After we lost the line of the feature, we did uncover a light smear of small bits of coal that appeared to end in a sharp line heading north/south on the same angle as the mounded coal and clinker of Feature 77. This line was about 4.5 – 5 m west of the originally located Feature 77, but like the feature, the smear disappeared to the south. This area produced few artifacts, most either nails or small personal effects. Of note, we found a small figural pendant that appears to be either a monkey or a mouse holding a club.

We are not entirely convinced that Feature 77 is the outline of a tent, although it may be. It is not at the same angle as Feature 78 and there is only one area of mounded coal and clinker. It is possible this mounded area is either a tent outline or part of a road berm.

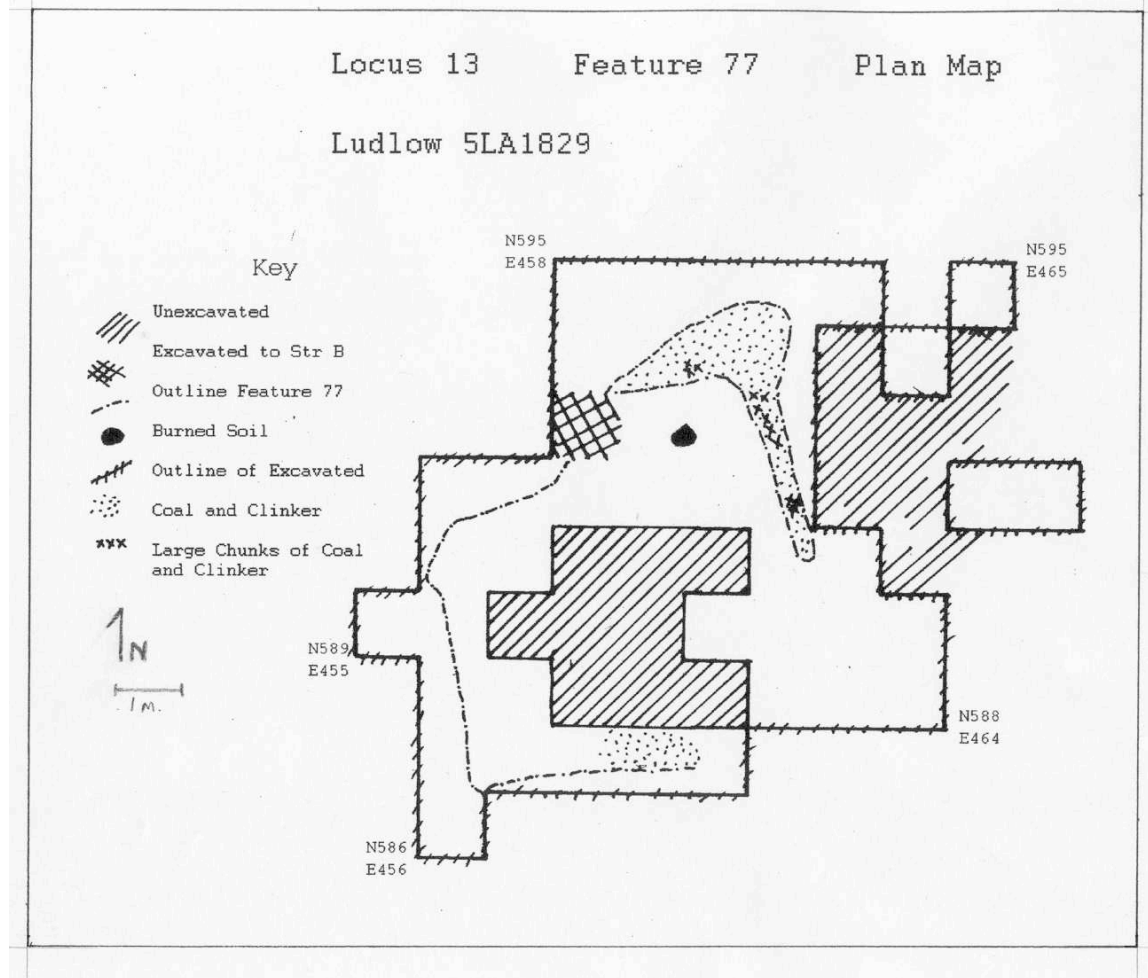


Figure 26: Plan map of Locus 13, Feature 77

Features 99 and 100

When it became obvious that Feature 77 was not going to produce a convincing tent outline, we surveyed nearby and noticed an area about 5 m north and 10 m east of the Feature 77 excavations. The area had a high concentration both of artifacts and coal and clinker with a burned stain on the surface of the soil in the concentration. We laid out two unit baselines, one running N/S at E470 and one running E/W at N600. The excavations in this area were also very shallow, just below the surface.

Feature 99

Under the root mat we observed a 20 centimeters wide line of coal and clinker surrounded by some ash, although not heavy amounts. The alignment was designated Feature 99, (see *Figure 27*). The feature is aligned about 40-45 degrees off grid north. The feature widens out at the north east end and when mapped almost looks as if it turns to the east, although there is no other evidence of it to the east. There were almost no artifacts associated with the units excavated over Feature 99. There were also few nails in alignment.

Stratum 99S—Contained areas of burned soil and several nails that appeared to have been in an alignment. The alignment was not recorded because they were noted on the surface and their original placement was in question. Other artifacts from the surface included glass, solarized glass, ceramics, metal and concentrations of coal and clinker.

Stratum 99R—Was a very dark grayish brown, 10YR3/2, silty loam. Patches of burned and ashy soil were visible at the bottom of the stratum. The soil was loose. Nails, ceramics, metal, glass and concentrations of coal and clinker were present. The artifact concentrations were light and the artifacts themselves were small.

Stratum 99A—This stratum revealed a narrow outline of coal, clinker and burned soil in a line at a 40-45 degree angle off grid north we called Feature 99. The feature measures approximately 20 centimeters wide. We originally believed it to be a tent outline, however, due to the narrowness of the feature and its association with Feature 100 (discussed above and below), we now believe it to be a drip line from the tent outline observed and called Feature 100. The soil within the feature was 10YR2/2, very dark brown, clay loam with concentrations of coal and clinker and some ash. The soil outside of Feature 99 was 10YR3/2, very dark grayish brown, sandy clay loam. Artifacts were light and small and appear to be found in higher concentrations to the north and west of the feature or between Features 99 and 100.

Feature 100

Continued excavations in the area revealed an additional coal and clinker concentration, which we designated Feature 100 (see *Figure 27*). It is a thick line of coal, ash, and clinker, 40 cm wide, with heavy amounts of ash. The line is on the 40-45 degree angle off north that we observed for Feature 99. Feature 100 consists of two arms of an apparent tent outline. One arm heads northeast/southwest and at the southwest corner appears to turn northwest (see *Figure 27*). The northwest arm is less well-defined and narrower. The northeast arm of the feature is very ashy and at the south end there was a large patch of burned soil in the same area as the burned soil we observed on the surface. This area overlapped the tent outline and appeared very red. The arms fade out and do not appear to connect to form a full rectangle. There were also two ashy circles to the west of the northwest arm. These appear to be outside the tent outline.

Stratum 100S—The surface stratum consisted of some patches of burned soil and areas of coal and clinker. Artifacts include glass, solarized glass, ceramics and metal.

Stratum 100R—The soil was 10YR3/2, very dark grayish brown, silty loam, loosely compact. Coal and clinker were also present in the stratum. Units associated with Feature 100 and to the north and west of the feature outline, had a higher concentration of artifacts. Artifacts includes small to medium pieces of glass, ceramic and metal, a diaper pin, and nails.

Stratum 100A—This stratum exposed Feature 100. The soil ranged from 10YR3/1, dark gray silty loam that was ash and gritty to 10YR2/1, black silty, ashy loam with large chunks of coal and clinker. Artifacts were still small to medium and in sparse to moderate concentrations. Typical artifacts found included, glass, solarized glass, nails, screws, metal and ceramics. Artifacts of note include a tie clip with the name “Leonard” engraved on it and a “Knights of Pythias” fraternal pin.

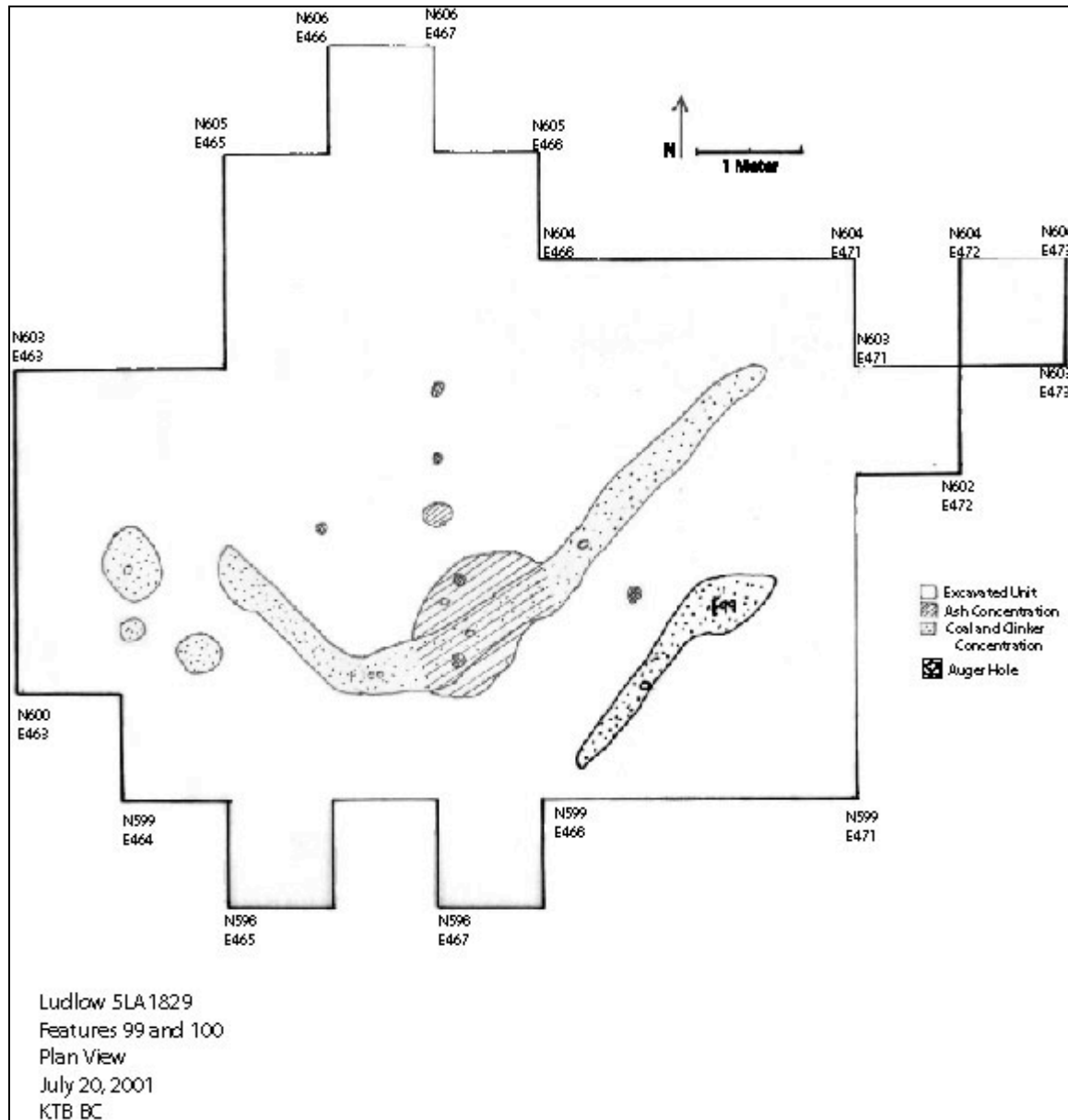


Figure 27: Plan View of Features 99 and 100 in Locus 13, 2001 field season

Summary of Features 99 and 100

Feature 99 is about one meter east of Feature 100. Feature 99 consists of a thin line of concentrated coal, clinker and ash about 20 centimeters wide. Feature 100 is about 40 centimeters wide with heavy amounts of coal, clinker and ash. These two features are on the same alignment of 40-45 degrees of north. Both features are shallow, only about 5-7 centimeters below modern ground surface. The units inside the tent outline produced more artifacts than those outside the outline, however few artifacts were found overall. Of note were two artifacts. One clothing clip, or tie clip, found was engraved with either a personal name or manufacturer, "Leonard." We also located a

medallion with the symbol of the Knights of Pythias fraternal organization. Other artifacts primarily included nails, with a few alignments noted, as well as very small pieces of ceramics, glass and metal. Artifacts from Features 99 and 100 have not yet been analyzed and cannot be included at this time.

It is unclear exactly how Features 99 and 100 were related. However, we believe they are from the same tent as opposed to two neighboring tents due to their proximity. The features are parallel and about 1 m apart. Feature 99 is not as wide as Feature 100 and is less convincing as a tent outline. However, it is possible those two features represent two neighboring tents. It is more likely that the coal and clinker concentration defined as Feature 99 is a trench or drip line associated with Feature 100. After completing the aerial excavations of Features 99 and 100, we excavated six auger probes to determine whether there may have been a cellar associated with them. The probes did not produce subsurface artifacts, indicating there was probably not a cellar in this location.

Summary of Locus 13 Testing

Testing at Locus 13 proved worthwhile through the identification of three or possibly four tent outlines (features 77, 78, 99 and 100). Features for the most part were ephemeral as expected given the preservation environment. There was substantial evidence of burning through artifacts and staining in the soil. However, the burning of the tents does not seem to have helped preservation. The postholes, and possible rodent burrows uncovered give an ambiguity in the interpretation of cultural activity in the area. However, the tent outlines do provide evidence of support for the photographic overlay as a technique for identifying features. The tents were not exact, but error could be accounted by the height of the picture taken, mismatch of modern landmarks, and parallax. The distance of Locus 13 from the main area of the camp also puts into question to which colony the tent outlines belonged. If the tent outlines were from the second colony, there would be no association of the tents with the photograph used in the photo overlay. The extent of the burning around the area of Locus 13 suggests they are indeed part of the first colony. The results of excavation also provide insight into tents without cellars. Further investigation will be needed to better define the activities of the tents.

14. Locus 14

This area was tested in 2001 in an attempt to locate possible tent outlines associated with a street in the colony. Testing was also aimed at the identification of tent 120 (arbitrary project number) to test the photo overlay in another part of the colony. Finding such an association would help determine the layout of the colony. A trench made of 6 shallow 1 meter x 1 meter units was excavated along the N545 line beginning at E530 and ending at E535 (see *Figure 6*). The soil matrix (10YR3/2 silty loam) was fairly uniform throughout the trench. There was some coal and clinker; the concentrations were light and not much charcoal was found. No feature was readily identified. However, there does seem to have been cultural activity in the area evidenced by the artifacts present. The artifact concentration was light. The artifacts included glass, ceramic, nails, metal pieces, and bullets. These items suggest possible household items as well as items related to the massacre (bullets). Although the artifacts suggest a proximity to a tent, no

tent outline, cellar, or road were identified. It could be that the trench is within the tent outline, and no boundary was located. The area searched was far from the position the photograph was taken and so the parallax becomes a definite issue. Further investigation in this area may help to show any possible outlines of features.

15. Locus 15

In 2002, the project attempted to identify features at Locus 15 due to the high cultural activity in the area suggested by ground penetrating radar. The locus is about 50m east of the monument area. We excavated a total of 10 square units between N531 to 535 and E540 to 544. At Locus 15, we identified two cultural features, a tent outline and a tent cellar. (See *Figure 28*) However, due to their probable association, we numbered them together as **Feature 101a and b**. Future excavations could divide the two into sub features. The tent outline, Feature 101b, consisted of a line of ash about 30 cm wide and 60 cm long on a 45-degree angle off of the site's grid. There is a slight depression that continues from the ash to the northeast and is probably a continuation of the tent outline.

Stratigraphic Description

Each unit was excavated in natural strata to Strata B. Strata S, was followed by the removal of the rootmat, Strata R. Stratum R was characterize by dark brown (10YR3/3) sandy loam. We characterized the next strata of looser brown (10YR3/3) sandy loam as Strata A. Stratum B was identified as dark yellowish brown (10YR3/4)silty clay loam. The cellar was characterized by very dark brown (10YR2/2) ashy mottled clay. This level contained high concentrations of coal and clinker or both. (See *Figure 29*).

5LA1829 Ludlow
Locus 15
Profile North Wall
E541-543
2002 Field Season
KTB

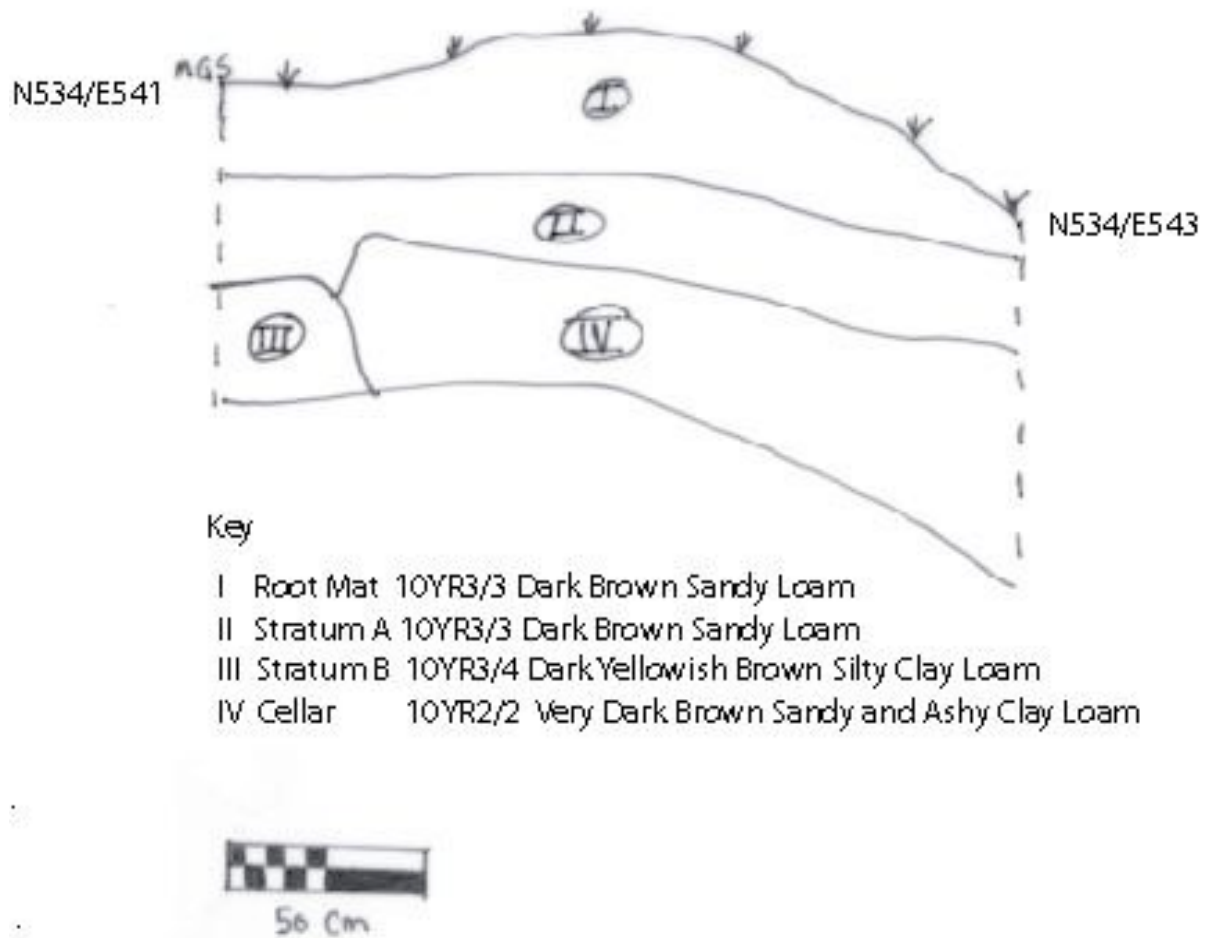


Figure 28: Profile of Locus 15 Feature 101.

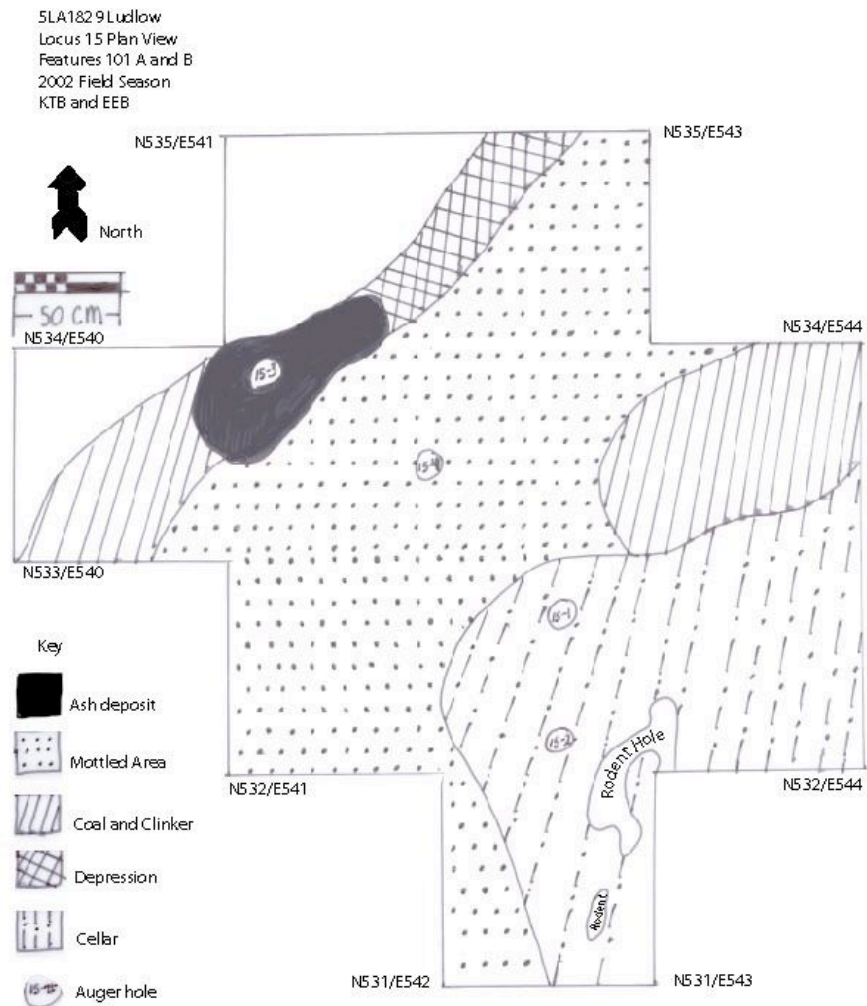


Figure 29: Locus 15 plan view showing Features 101 A and B.

Feature Discussion

The cellar, Feature 101a, is located 1-1.5m south of the outline along the same orientation. Crew Chiefs identified the cellar due to the darker soil, with more ash, and a softer texture as compared to the surrounding soils. There was also a great deal of rodent disturbance inside the cellar. The artifact density was considerably higher in the area defined as the cellar. The area between the outline and the cellar was mottled gray and orange extremely compact soil with few artifacts.

After completing the surface excavations in this area, project archaeologists placed auger holes to test our assumptions that the ashy line was in fact a tent outline and the darker soil was the cellar. We placed four (4) auger holes throughout the excavation area, two (2) in the dark ashy soil we call the cellar, one (1) in the ash line we call the tent outline, and one (1) between the cellar and tent outline (See *Figure 29*). Two in the cellar produced bone and ash at a depth of greater than 1 meter below surface confirming our assumption that it was a cellar. Based on these auger holes, project archaeologists believe the cellar to extend to a depth of about 150 to 180 centimeters below modern ground surface. The auger probe between the cellar and tent outline was sterile. The final auger hole within the outline of the tent produced ash to a depth of 10 centimeters

below surface then became sterile soil suggesting our use of the term tent outline is correct.

Artifacts of note from this area include a bottle opener and a brooch. Other artifacts include glass, ceramics, metal and nails. A cache of bone was also found near the tent outline. Archaeologists also found some cork, bottle caps, buttons, leather, bullets, wood, and a marble.

Summary

Features 101a and b proved to be a tent outline and associated cellar. These were very interesting finds. This was the first time project archaeologists uncovered a tent outline in association with the tent cellar. Due to time constrictions, project archaeologists were unable to further explore these two associated features, which was unfortunate. Future excavations and interpretations would benefit from further exploration of this relationship.

16. Locus 16

Evidence from ground penetrating radar also suggested a high amount of activity in the area known as Locus 16; located north of Feature 73. Nine units were laid out in this locus to uncover any features between N542 to 544 and E558 to 561. (See *Figure 30*).

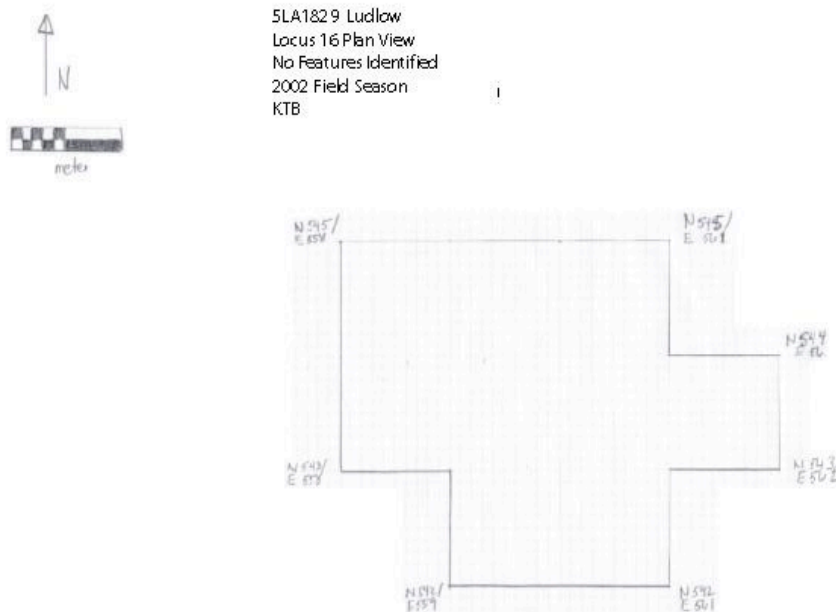


Figure 30: Locus 16 plan view.

Each was taken down by layer-surface, rootmat, A and B- to a depth of about 11 cm below the surface. (See *Figure 31*)

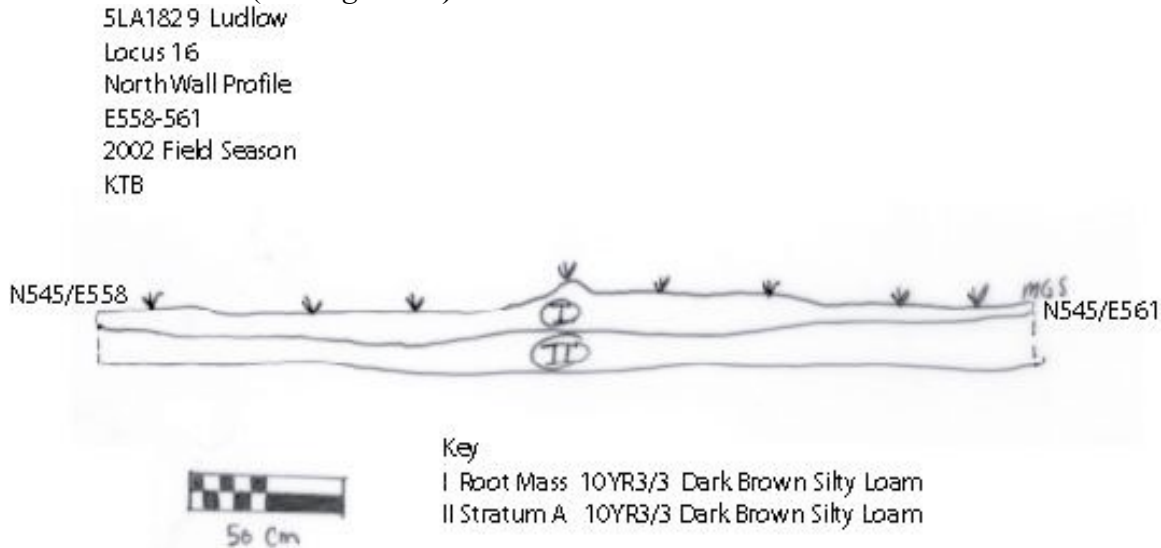


Figure 31: Locus 16 profile

We found few artifacts in this locus, but there was glass, metal, and ceramics. There was some burned coal, but the soil was generally dark brown silty clay with evidence of minimal disturbance. The surface had evidence of the remains of back dirt from the excavations at Feature 73. We believe the GPR picked up this area because of the soil disturbance and remaining discarded metal from Feature 73 located directly southwest of the GPR concentration. Project archaeologists do not believe this area was a cellar.

17. Locus 17

In 2001, we began an auguring project within the monument area of the site for the purpose of identifying Mary Petrucci's cellar and tent. We labeled the area of the site inside the larger fences monument Locus 17 to provide spatial control of archaeology conducted around the monument. The area of the monument sampled was south of the death pit and internally gated area. This area was determined to be the possible location of Mary Petrucci's tent based on the photo overlay and her statement to the Commission on Industrial Relations that her tent was in the southwest corner of the colony. Auguring was deemed adequate in finding a cellar, to which she also claimed she had under her tent. 33 augers were made in a grid pattern with 1 meter between each auger test. There were some promising hints of a tent location through burned glass, and metal. Six tests had artifacts or clinker at depths of 1.18 to 1.68 m below the ground surface. They were grouped together starting at N509 E 452 and run to N510 E 455. The grouping with similar soils changes at the same depth suggests a buried soil horizon. There is no definitive evidence of a cellar, but there is some disturbance or activity in this area.

In addition, a photographic overlay project from the ground level was conducted in Locus 17 during the 2002 field season. To test for the location of her tent and to test the

photograph overlay, we used auger sampling to identify any features. Mary Petrucci in her testimony to the US Commission on Industrial Relations claims to have had a cellar under her tent, so auger testing seemed appropriate in order to identify its location. However disturbance in this area led to inconclusive results of the auger probes and no features could be found.

18. Locus 18

Project archaeologists excavated at Locus 18 in order to ground truth a GPR cluster. The locus was approximately 5 meters east of feature 73. It is located between N538 to 540 and E574 to 576. (See *Figure 32*).

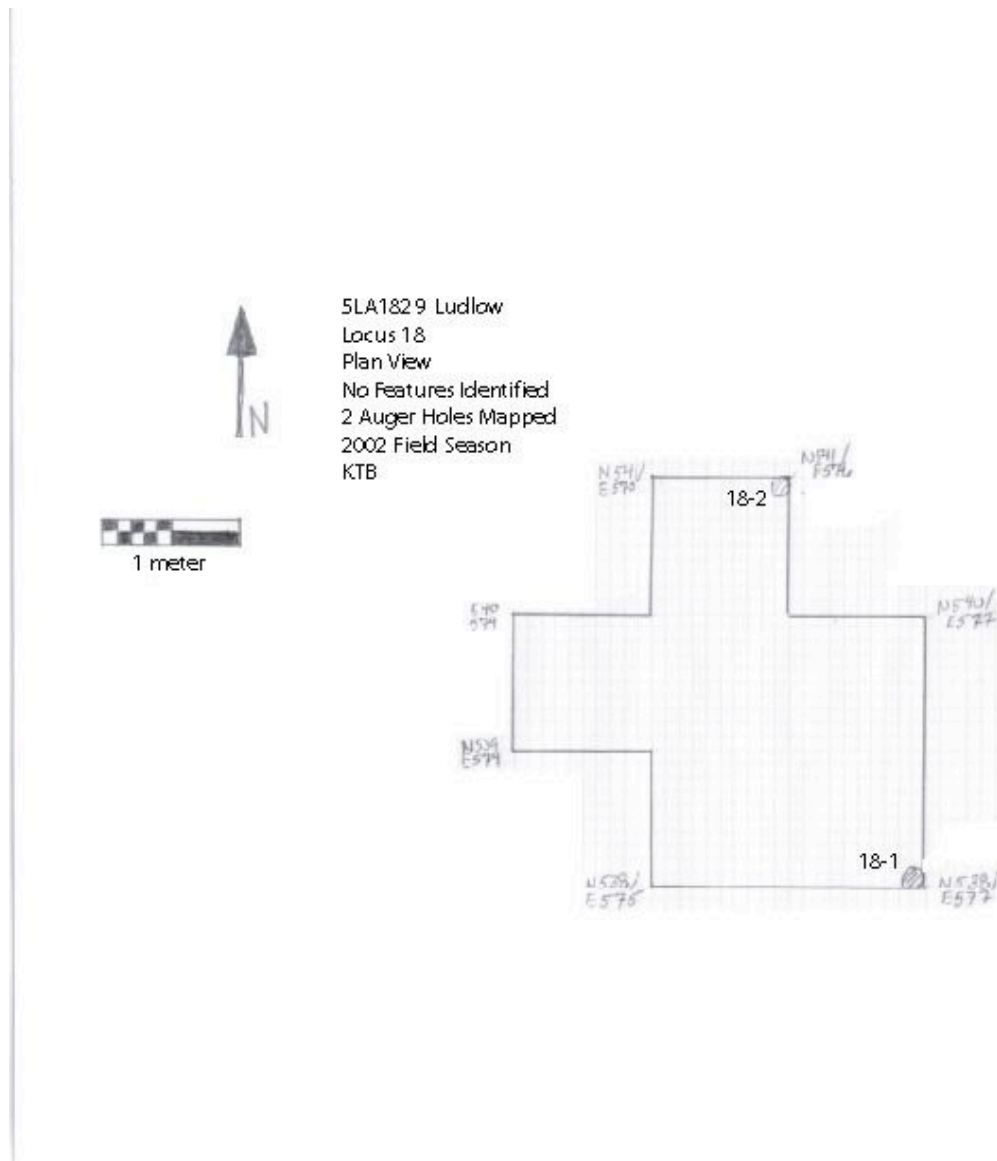


Figure 32: Locus 18 Plan view

The area was excavated to Stratum A and there was not discernable soil change between the rootmat and Stratum A. No features were identified, only a small amount of artifacts were uncovered including glass, metal, and ceramics.

Unfortunately, there was no confirmation of the GPR. Because of a shift we noted in real time markings and where the features were actually located, it is possible we simply missed the feature or did not recognize it, if we only clipped the edge. We identified the shift in real time markings after the locus was closed out. Because it was a small area uncovered, it is possible we missed the feature altogether. We would need to return and open a larger area in order to determine whether there is or is not a cellar in this location.

19. Locus 19

Locus 19 was identified as the location of a tent cellar due to an auger test. Green grass clustering in this area suggested a disturbed area. Two auger holes confirmed this disturbance with coal, clinker, and metal found to depths of 60 cm below the surface (discussed above). Locus 19 is located about 7 meters east of the parking lot on the north end between N 556 to 558 and E518 to 520. Seven one by one meter units were excavated in this area. (See *Figure 33*). The auger holes indicating that this was a cellar were located in units N557/E519 and N557/E520.

Stratigraphic Discussion

The locus was excavated to Stratum A, about 15 centimeters below modern ground surface. Stratum A was identified as a dark grayish brown clay loam with a relatively dense concentration of artifacts.

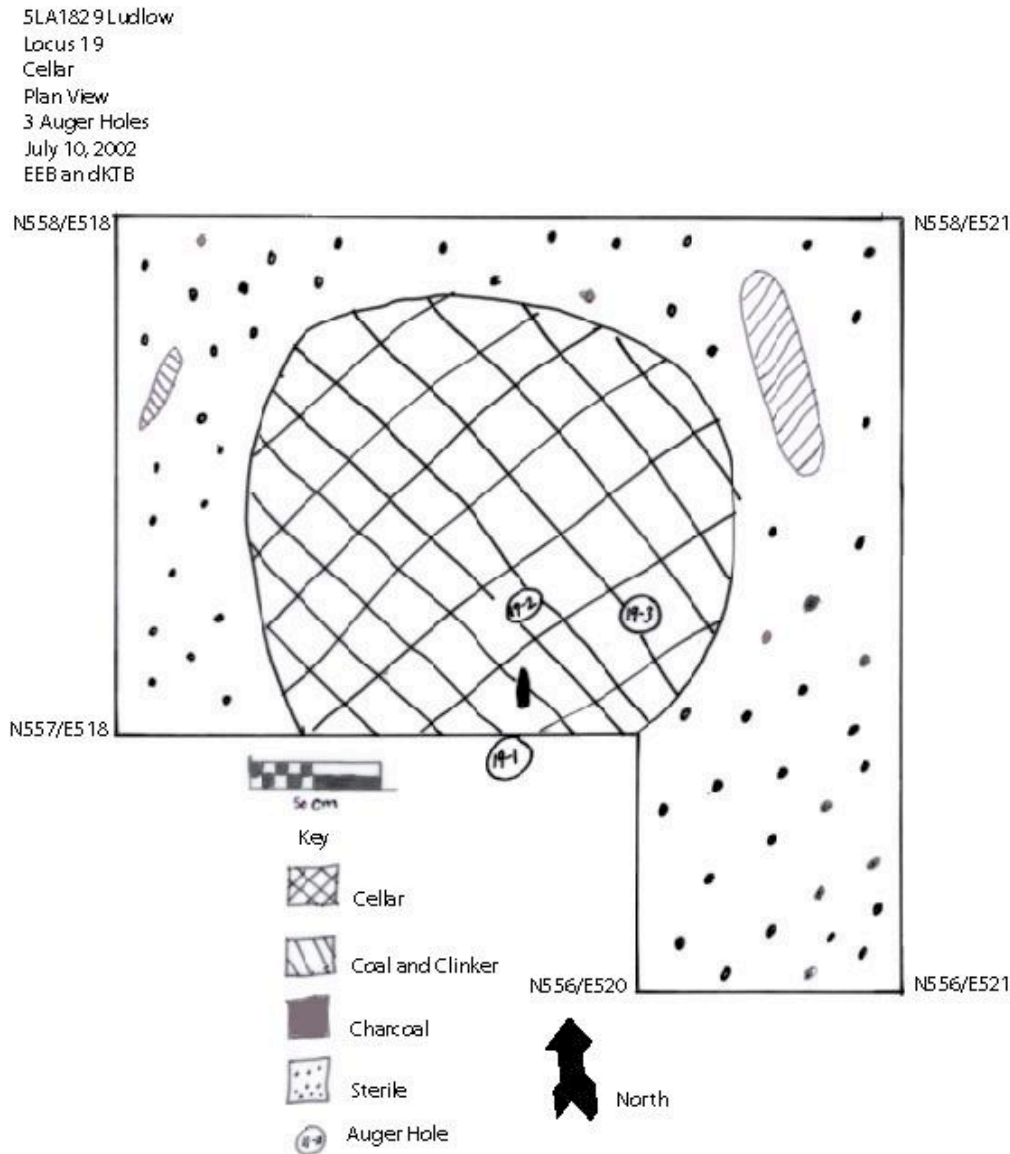


Figure 33: Locus 19 Plan View

Summary

The cellar seems to be centered on unit N557 E519 and approximately two (2) meters by two (2) meters in size. (See *Figure 32*.) The cellar was identified by changes in the soil and the presence of artifacts. The soil in the cellar appears to be darker, more compact and contains a much higher clay concentration. Unit N558 E518 appeared to contain a drip line that was at about 90 degrees to a trench filled with coal and clinker found in N558 E520. These drip lines suggest the outline of the tent.

20. Locus 20

Locus 20 was placed over an auger hole (20-1) that produced evidence of a cellar. The auger placement was chosen due the relatively high concentration vegetation noticed during our judgmental auger survey. The locus was also sighted by a cluster of GPR hits

(Cluster 12). The cluster is slightly to the north of our excavations, but within the shift of real-time markings noted above. As discussed above, the auger probe contained rust, ash, coal, and glass at about 1m below the surface. Test units were placed over Auger hole 20-1, to look for any feature boundaries. This locus is located between N554 to 557 and E584 to 587. (See *Figure 34*).

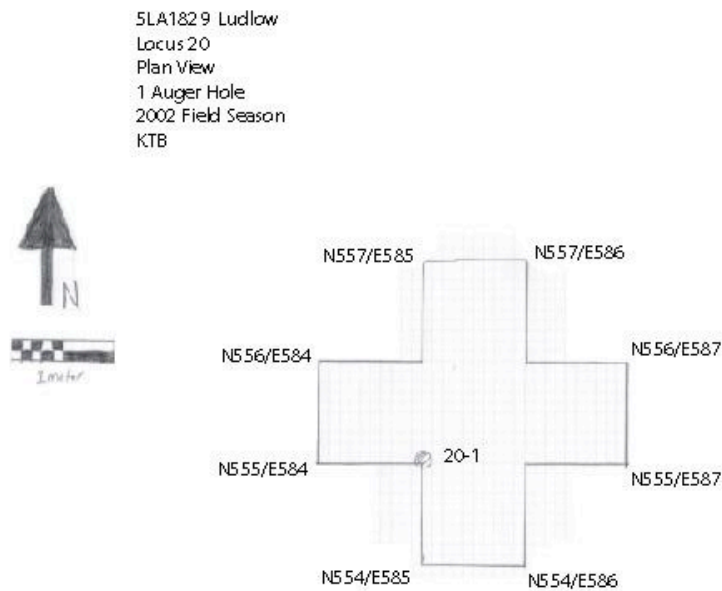


Figure 34: Locus 20 Plan View.

Stratigraphic Discussion

We excavated in three strata, S (surface), R (rootmat) and A. Stratum A was characterized by an increase in the amount of coal and clinker as well as in artifact densities. We did not encounter the ashy or mottled soil we observed at Locus 15 that clearly identified a cellar. However, we also did not come across the friable brown soil of Loci 16 and 18 that we believe is sterile. Artifacts of note include two miners tags and one had the number 81 engraved on it. Other artifacts included nails, glass, metal, and ceramics.

Summary

N555 E584 was excavated below stratum A as a test unit to help further define features. While there were no readily identifiable features as in Locus 15, we strongly believe there is a cellar at this locus. There was a change in clay content of the soil and the high concentration of artifacts suggests the possibility of cellar. This evidence

combined with the findings in the auger hole lead us to strongly believe there is a cellar in this area.

21. Locus 21

Locus 21 was tested using auger cores to identify a possible cellar. (See *Figure 6*) It was chosen as an area for testing due to the relatively high amounts of vegetation in the locus. Two auger cores were taken. Auger 21-1 had cultural material reaching about 2m below the surface with burned wood, coal, a nail, a pendant, and disturbed soil. 21-2 stopped at about 90 cm below the surface due to a probable rusty object obstructing further progress. The top soil at this locus had evidence of disturbance with rust, coal, and clinker. No excavations were conducted in this locus due to time constraints. This locus also proved to be a cellar.

22. Locus 22

Locus 22 and Locus 23 were both scatters identified by the magnetometer. (See *Figure 6*). Each were only tested using the Auger, and are discussed in detail above. This paragraph will offer a brief review of the findings. The surface for each was bare of vegetation and covered with a scatter of coal and clinker. To test these scatters, we augured two holes into both loci. Both had promising evidence of cellars. Locus 22 had one auger (22-1) blocked by a rusted object at about 90 cm below the surface, and a second auger (22-2) had cultural material at least to 2m below the surface. Cultural material included glass, ceramics, metal, coal and clinker.

23. Locus 23

Locus 23 had a large amount of artifacts come from the test holes stopping at about 180 cm below the surface. Artifacts in Locus 23 included cloth, cork, glass, coal, clinker, and metal. Both were determined to be cellars. No further excavations were conducted in either of these loci due to time constraints.

IV. ARCHAEOLOGICAL INVESTIGATIONS AT THE CF&I COAL CAMP OF BERWIND (5LA2175) 1998-2000 FIELD SEASONS

This chapter presents our findings from the survey and preliminary testing at the Colorado Fuel and Iron company town of Berwind (5LA2175). This town was occupied during the 1913-1914 strike, and would have been affected by the changes after the strike. Many of the strikers at Ludlow came from the coal camps in Berwind and Delagua Canyons.

A. Physical Layout and Chronological Development of Berwind Coal Camp

The size and complexity of this site necessitated that our objectives for this field season be rather broad. Our primary goals were to; (1) understand the physical layout and chronological development of the town, (2) explore the cultural geography of the community, and (3) assess the potential for future archaeological research in specific areas.

Our first objective was to survey and map the entire town area. We felt that this would allow us to understand the site, as a whole, before exploring specific areas in greater detail. In addition, as we explored and documented the community we wanted to identify areas of the town that dated before the strike of (1890-1914), and areas of town that dated after the strike (1915-1931). This is important because many of the questions that we will be addressing in the future deal with the changes that occurred in coal mining communities as a result of the strike and the Ludlow Massacre.

We were able to produce a comprehensive map of the town site during the 1998 season (*Figure 35 a-e*). We visually represented each structure on a large site map and recorded basic information about the construction, condition and context of each feature (*Appendix I*). Our first step was to use a compass to plot in the main road running through the canyon. This became the base line, from which all features were mapped. Control points were established along the road and plotted on the site map. The remains of foundations, fence lines, depressions and other features were mapped in relation to these points by determining the distance and angle from the control points. Five hundred and twenty six features were recorded in this fashion, each receiving a unique feature number. In addition to being plotted on the map, a basic description of each feature was recorded on a Survey Record Form. Students were asked to determine: (1) type of feature (e.g. foundation, privy, mine entrance), (2) use type (domestic, industrial, administrative), construction material (e.g. stone, cement, brick), artifact frequency (heavy, moderate, light), and note any diagnostic chronological markers.

The end product of our efforts is a record of the remnants of an early Southern Colorado coal-mining town. In addition to representing the town as a whole, we were also able to identify twenty-one distinct residential/use areas. These “districts” were usually defined either by geography or architecture. Each area was given a letter designation.

We conducted surface collection of artifacts in order to trace the development of the community over time. By collecting diagnostic artifacts from each of the “districts” within the town we hoped to be able to determine if certain areas were occupied before the strike, and others were occupied after the strike. We walked over each “district” again scanning the ground surface for artifact scatters. Specifically we were looking for sensitive temporal markers such as colored glass, tin can types, electrical accoutrements and container closures that would allow us to narrow the date of occupation of each area.

Thirty-four collections were made, and each collection area was recorded on the main site map. Analysis of these artifacts suggested that there is at least one area that was occupied previous to the strike and appears to have been abandoned after the Massacre (Area K, Fe 232-243 & 247). This is particularly significant given the fact that Berwind was a densely occupied and growing community, doubling in population after the strike¹. Nearly every inch of space that was habitable was occupied.

Our determination that portions of Area K dated to before the strike was substantiated by documentary research. One of the graduate students working on the project conducted a preliminary review of “Camp and Plant Magazine,” a journal produced by Colorado Fuel and Iron Company². She located a photograph from an article in a 1902 edition of “Camp and Plant” which showed several houses in the town of Berwind. By matching up the landscape in the background of the photo with the existing landscape, we were able to determine that the area depicted was Area K on our map. The majority of houses in the photograph were destroyed by the construction of Berwind High School, which went up sometime after the strike. The features that we located, however, were on a rise above the ruins of the High School. Presumably these houses were also abandoned or partially demolished when the High School was constructed, although the building did not directly impact them. Finally, one of our informants who participated in the oral history interviews moved to Berwind Canyon in 1917 and attended Berwind High School in the 1920s. He said that he did not remember any houses on the rise when he lived in Berwind, supporting the notion that the area was probably abandoned soon after the strike³.

Other documentary data has helped us to identify pre-strike areas and the characteristics of pre-strike architecture in Berwind. Documentary research at the Las Animas County Clerks Office uncovered a 1911 map of Berwind. This map shows what now is the central part of town. Apparently, the community expanded primarily to the north, and a bit to the south sometime after the map was drawn. By matching up this map with our archaeological base map we were able to determine which “early” structures were maintained as the town grew, and which structures were still visible on the ground today. The surviving pre-strike architecture of the company built houses at Berwind shows that the CF&I tended to build four and six room frame houses that were perched on

¹ Population of Berwind from Trinidad City Directories

| | |
|---------|-----------------|
| 1895 | several hundred |
| 1896 | 450 |
| 1897 | 900 |
| 1912/13 | 500 |
| 1921 | 1000 |
| 1924/25 | 900 |
| 1929 | 900 |
| 1931 | abandoned |

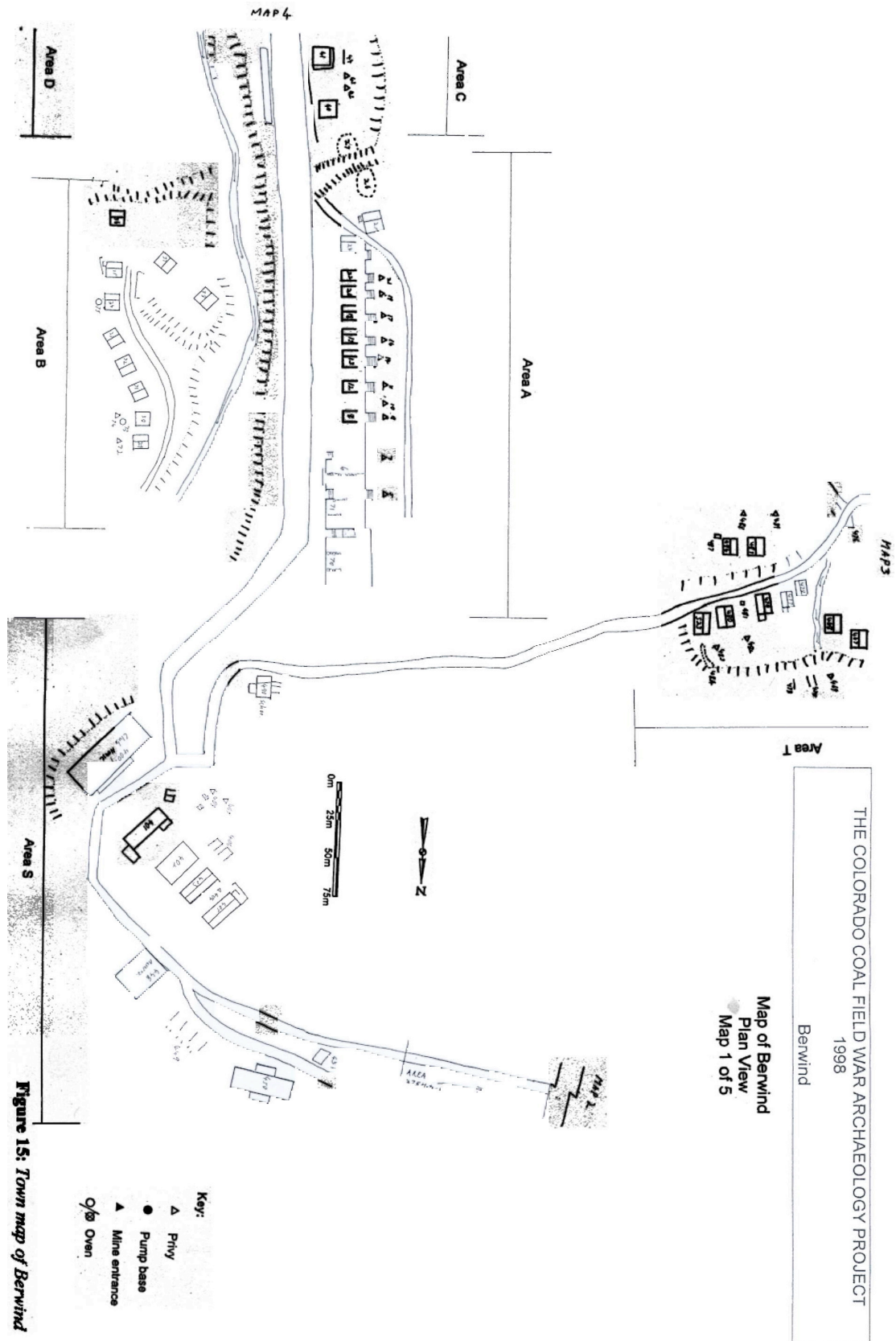
² This journal was produced by the Sociology Department of Colorado Fuel and Iron Company from December 14, 1901 through April 30 1904. Dedicated to heralding the growth and improvement of the company, this magazine featured images of mining towns and the improvements made to them over the years.

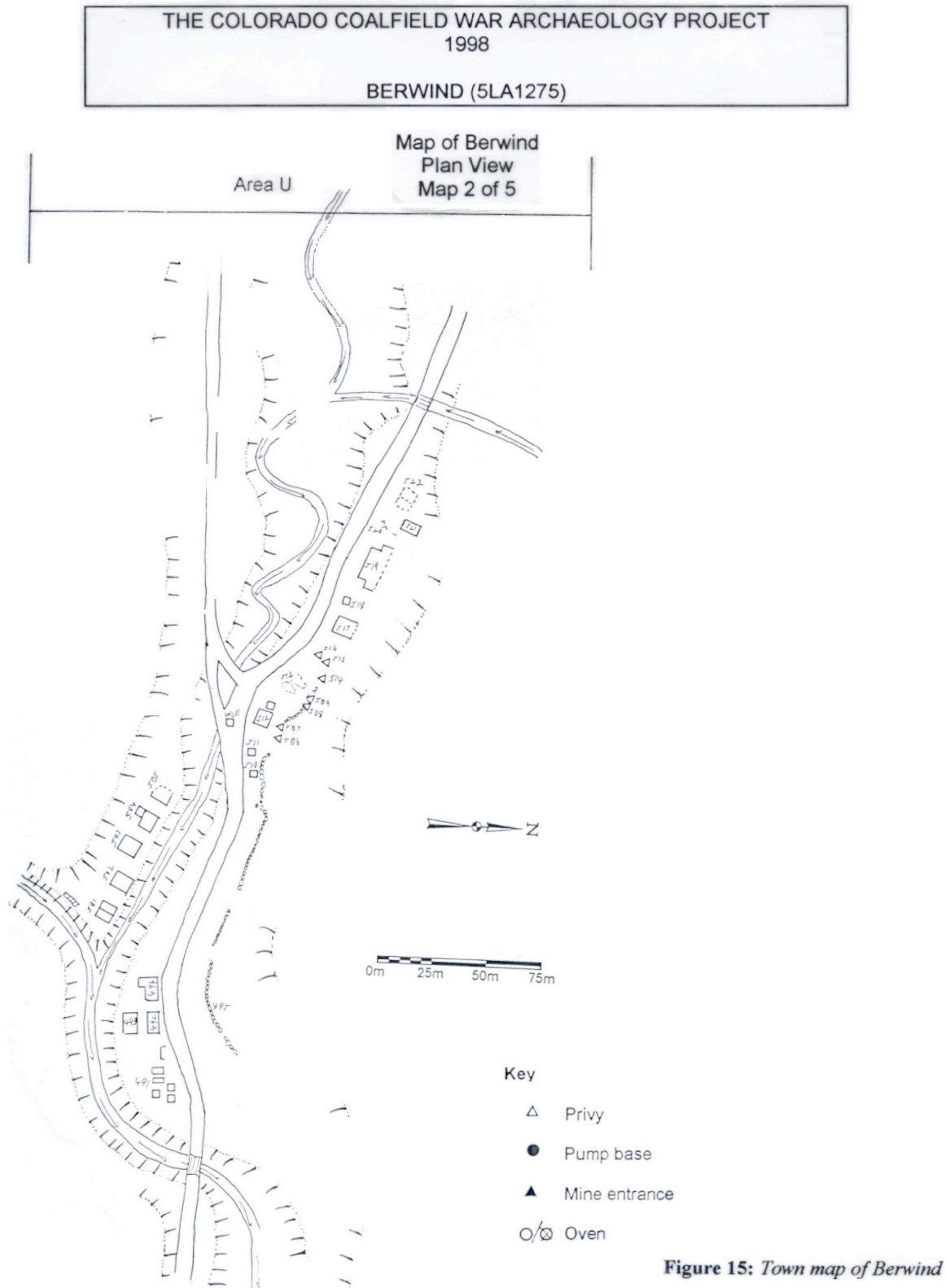
³ Informant C, interview 8/7/98

foundations of large, shaped local stone. These sturdy foundations contrast with later cement and stone foundations that tended to be less carefully made. Further, the earliest “districts” of Berwind as indicated by both artifactual and documentary evidence, have a kind of architecture that is not present in any other part of the site. As we surveyed what we now knew to be the early areas of the town we discovered six small structures that were completely constructed of unshaped local stones, fixed together with a soft, mud based mortar. The size of these structures is approximately three meters by six meters, much smaller than the average Company Owned House. The materials and the construction technique of these buildings is very similar to a vernacular “Cabin at Berwind, Colorado” depicted in a 1903 edition of “Camp and Plant.”⁴ The caption under this photo read “...the sort the men build for themselves.” When Company Owned Housing was overcrowded, or when the miners and their families could not afford to rent a house (approximately \$2.00/room) they often rented a piece of property at a lower price and built their own houses. This practice was curtailed after the strike as the CF&I attempted to assert greater social control over these rural towns. We are fortunate to have several examples of this kind of architecture as an example of the way many miners and their families lived at Berwind.

Overall, our efforts at mapping and surveying the town were successful. In a relatively short period of time we were able to visually depict Berwind and record data about the ruins. In addition we were also able to define residential and use districts, identify both pre- and post- strike areas of the town and we have begun to understand some of the patterns involved in the growth and change in the community.

⁴ “Camp and Plant,” Vol 3, No.1





THE COLORADO COALFIELD WAR ARCHAEOLOGY PROJECT
1998
BERWIND (5LA1275)

Map of Berwind
Plan View
Map 3 of 5

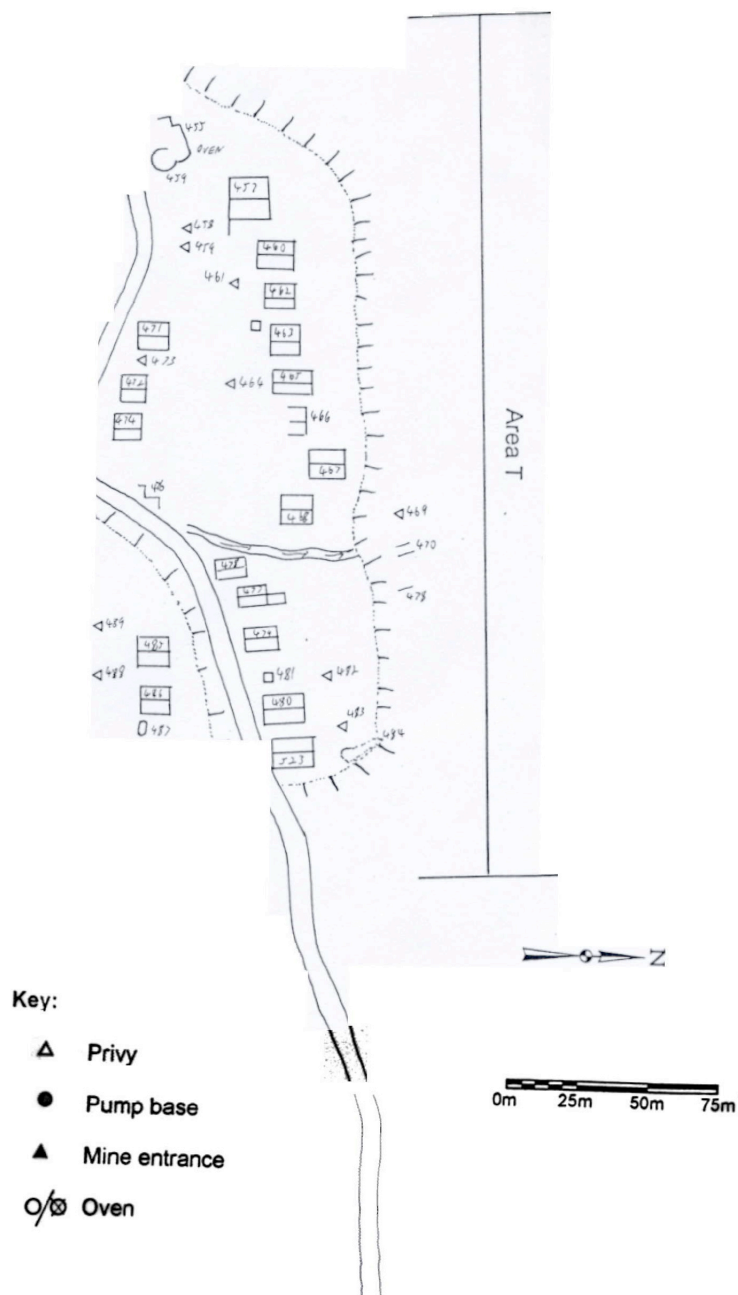


Figure 15: Town map of Berwind

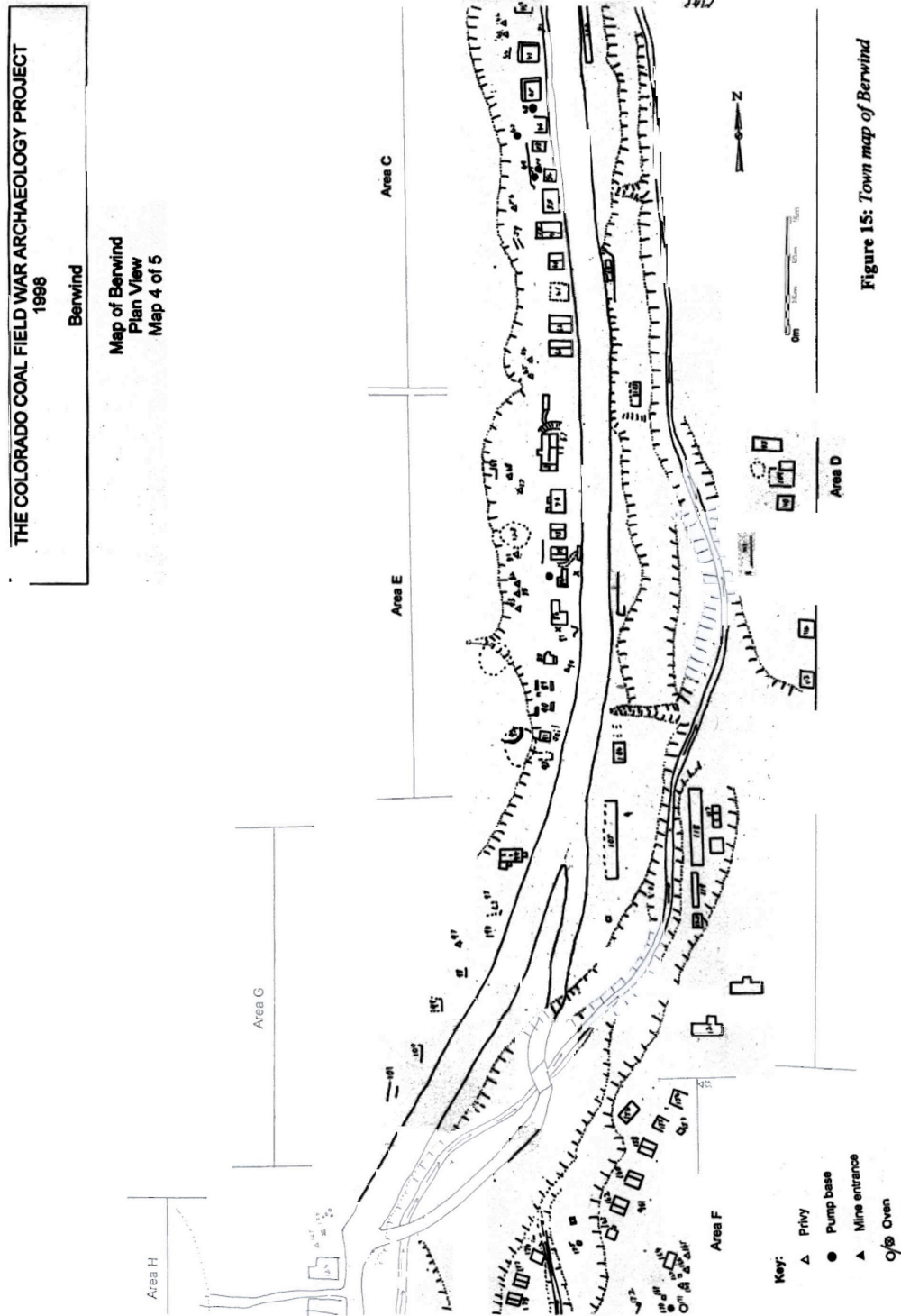


Figure 15: Town map of Berwind

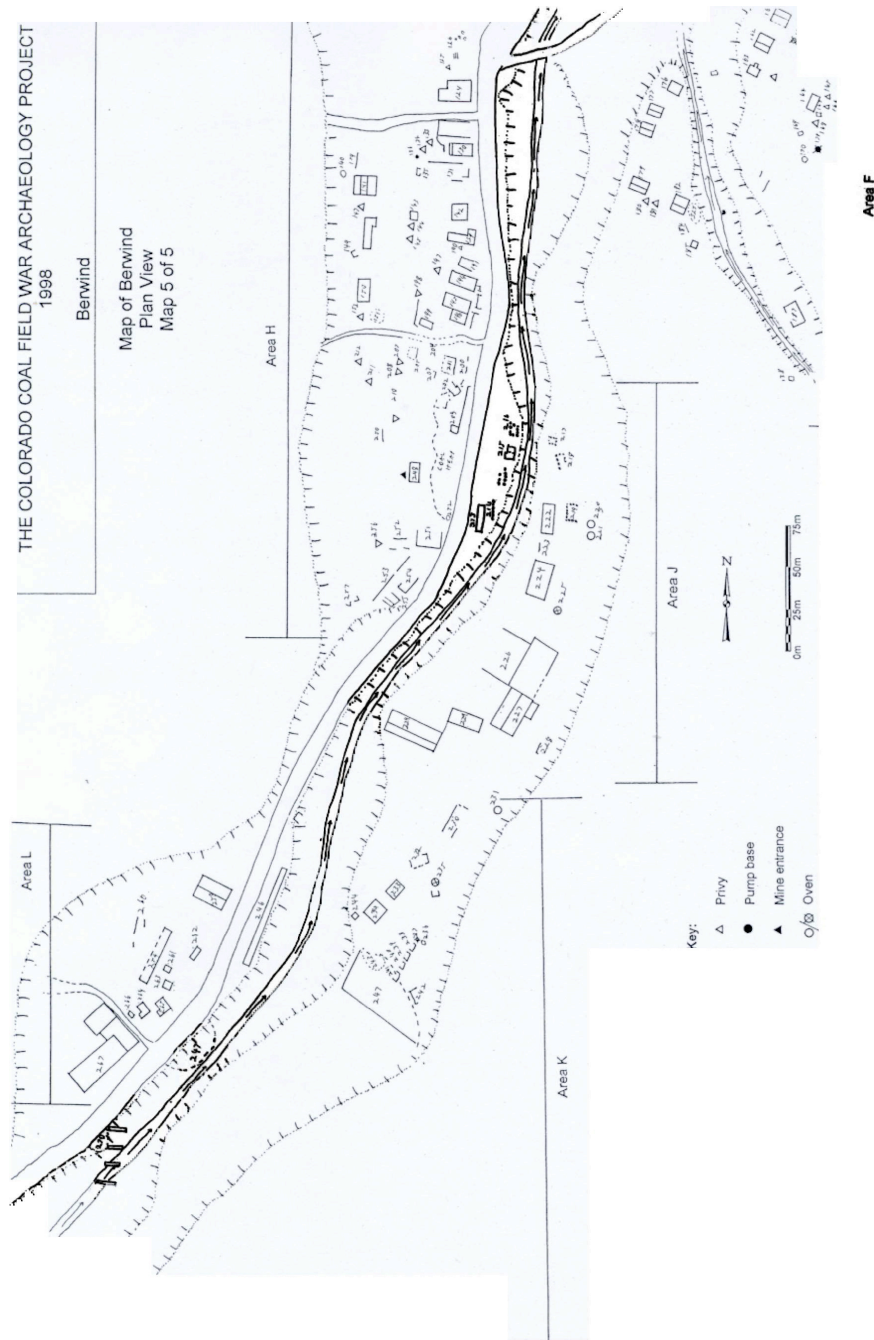


Figure 15: Town map of Berwind

Figure 35: Town Map of Berwind

B. Cultural Geography of the Community

Through our maps, surveys and documentary research, we were able to more fully understand the spatial and temporal dimensions of Berwind. Berwind, however, was not only a spatially defined town, it also was a community where miners and their families lived their daily lives. It was this more personal and intimate side of the community that we hoped to begin to get at through series oral history interviews. We were fortunate to have a few people who remembered their childhood at Berwind and other nearby towns. These interviews complement the archaeological research. Our informants have added important information about the things that we are finding at Berwind, and they have added dimensions to our understanding of daily life in the town. Both oral history interviews and documentary research have helped us to identify features in the town, establish the presence and location of ethnic neighborhoods, and understand the micro-geographies of house/yard areas.

An archaeologist conducted a total of seven interviews with four informants. The informants were self-selecting. They were either referred to us by friends and relatives, or approached us themselves. Surprisingly our sample ended up being rather diverse. We interviewed three men and one woman. Two of the informants came from Italian families, one from a Czech family and one from a British family. Two of the informants came from a struggling, and somewhat impoverished household, one from a family that “got by,” and one informant was the son of a relatively privileged “skilled” miner. Two of the informants lived in Berwind Canyon between 1908-1922. One informant moved to Berwind in 1917 and lived there until 1931. In all, we conducted seven hours of interviews. All of the interviews, except one, were taped with the consent of the informant.⁵ No set format or specific sets of questions were employed. The interviews took the form of casual conversations and recollections of growing up in Berwind.

Informant A:

Interviewed dates: 6/29/98, 7/3/98, 8/6/98, conducted in informants' home.

Woman

Age 90

Italian heritage

Although M-- was unable to identify specific areas of the town of Berwind in photographs, she did tell us a great deal about the geography of her own home, what her life was like growing up, the work her mother did in the home, and family relations. She especially stressed that “life was hard” and “we all took care of each other, we needed to.”⁶ When her sister died in her late twenties leaving three children and a husband, M-- and her family took care of those left behind. She described in detail the work involved in cooking, washing and cleaning and gardening. In particular she told us about the

⁵ The first interview with Informant A occurred rather spontaneously. Notes were taken of the interview and are on file with the Berwind Oral History Data at the University of Denver, Archaeology Lab. A summary of topics discussed in all interviews is also on file at the University of Denver, Archaeology Lab.

⁶ Interview with Informant A, 7/13/98

outdoor brick ovens we found on our survey. She said that her mother “used to bake bread and sell the loafs for \$0.25. That’s how we lived.”⁷

One of the most interesting things M— told us was that African American miners and their families tended to live up Stock Canyon and School Canyon.⁸ The areas M— mentioned correspond to Area T and Area U on the archaeological site map. When asked about other ethnic groups, M—recalled ethnic areas of the town, but could not recall specifically where they were. She did say that she thought the Italians lived around the Catholic Church, which corresponds, to Area H on the archaeological site map.

Informant B:

Interview Date: 7/3/98, conducted at informants sisters’ home

Age: 80s

Italian heritage

P-- talked mostly about the experience of going into the mines at the age of twelve. He described how the crews worked together and how dangerous working in the mine could be. He told part of the story of the Ludlow Massacre, but said his family had left Berwind Canyon and set up a house far away from the tent encampments. They just eked by that year.⁹ P-- also confirmed M--’s statement that African American families tended to live up in Stock and School Canyons, although he said other ethnic groups also lived up there.

Informant C:

Interview Date: 8/7/98, conducted at Berwind

Age: 83

British heritage

B—was able to reflect both on the broader landscape of the town, and his experiences living there. He came out to Berwind with us and pointed out many of the buildings that he remembered including the Protestant and Catholic Churches, the YMCA, the High School, the tavern, the company store and others. As we drove down the canyon, B— described where C, F & I territory began and told us about a guard shack, where all vehicles going in and out were searched. He told us about going to school at Berwind, the work his mother did in the home, his recollections of labor actions and strikes, and conditions in the town. B—also provided us with a Xeroxed copy of his 1927 high school yearbook that has several priceless photos of young students around the high school building.

Informant D:

Interview Dates: 9/8/98, 9/17/98, interview conducted at University of Denver

Man

Age: 70-80

⁷ Interview with Informant A, 7/13/98

⁸ Interview with Informant A, 6/29/98, 7/3/98

⁹ Interview with Informant B, 7/3/98

Czech heritage

Informant D contacted us after he saw an article in the Denver Post about our excavations. C— spent several of his early years in Berwind Canyon. He came to our first interview laden with copies of research he has conducted himself on an adjacent town called Tabasco, and some information on Berwind. C—spoke to us for several hours about the arrangement of the town of Tabasco, and everyday life in a coal camp. C—was also able to tell us about an area in Berwind he knew as “Frijole Hill” where “Hispanos lived.”¹⁰ The area described by C—corresponds to Area B on our archaeological base map.

Our oral history interviews proved fruitful in informing us about the cultural geography of the community in several ways. First, many of the informants were able to tell us about the use or function of certain structures or parts of town. Further, all of our informants told us about daily life and activities in their households. They have given us a glimpse of specific activities and social relations that were part of their lives. Finally, almost all of the informants mentioned “ethnic” areas of town. Because some of the planned future research on this site will focus on specific ethnic groups or at very least will take ethnic identity into consideration, the location of these areas is very important. Of particular interest is the location of the African American settlements. Because very little has been written or studied about African American heritage in Southern Colorado, or even Colorado in general, this makes the sites up Stock and School canyons especially important.

Our attempts to identify ethnic neighborhoods have been augmented by on-going census research. Graduate students gathered records for the town of Berwind from the 1900, 1910 and 1920 U.S. Censuses. For example, even a quick overview of the 1900 census indicates that members of specific ethnic groups tended to live near each other. Because the town of Berwind was situated in a canyon it is possible, by knowing the town listed before Berwind in the census and the town listed after Berwind, to trace the direction the census taker was moving through the town. Matching this data up with our historic and archaeological maps, we should be able to broadly identify the location of specific ethnic neighborhoods.

Graduate students also conducted archival research in the photo collections of the Altman collection in Trinidad, the Mitchell Museum in Trinidad, the Western History Collection of the Denver Public Library, the Colorado Historical Society Archives, and in several personal collections. Over fifty photos of the town of Berwind were uncovered as a result of this research. These photos have provided important clues to what the town looked like during various periods of its existence. The majority of the personal photo's date to post-1915 when fairly inexpensive photo equipment became available to the layperson. There are, however several early “official” photo's of the town, dating between 1900 and 1915 that were published in CF&I's “Camp and Plant” magazine.

¹⁰ Interview with Informant D, 9/8/98, also included on hand sketch drawn by Informant D, on file at University of Denver, Archaeology Lab

Through our oral history interviews and documentary research we were able to explore the macro-geography of the town as a whole, the establishment of ethnic neighborhoods, and the micro-geographies of households.

C. Berwind (51A2175) Archaeological Findings

I. AREA A

Area A is west of the canyon road, and is approximately 250 meters long and 60 meters wide. There were about 12 structures here along with privies. The houses were on a terrace banked by a stone retaining wall along the road. This “district” consisted of twelve foundations and nine privies. Several of the oral informants referred to this area as “the show houses” or, in reference to the Ludlow Massacre, “the atonement houses.”¹¹ During the mapping project we picked up four artifacts from the surface in the vicinity of Feature 16. These were a large blue glass marble, two pieces of ironstone, and a sherd of a stoneware jug or crock. None of these artifacts was diagnostic.

Only one test unit was excavated in this area, between Features 13 and 12, three meters east of Feature 13. We chose to put a unit in this locale because we believe that the structures in this area were constructed soon after the strike, making it a good comparison with Area T. This unit (Unit 6) contained seven stratigraphic contexts (*Figure 35 and 36*). Strata A and B were associated with the destruction of the houses and Level C appears to be an intact yard layer. Under Level C we encountered a pipe trench and a pipe that ran parallel with the house foundations. The pipe trench was excavated as Strata D, G, and H. This pipe is probably associated with improvements in access to water that were made after the strike. A water tank that was located up hill from these houses supplied pumps located near the homes. Hitting a water pipe on other archaeological sites may be considered unfortunate, however at a site like Berwind these kinds of features can tell us about important aspects of everyday life. Hauling water was an unending task for miners’ wives and children. Water needed for washing, cooking and drinking was hauled great distances from far away pumps. Access to water had a great impact on daily domestic labor.

Stratum A was a brown silt loam and rootmat, mixed with concrete and plaster. It contained 31 artifacts, primarily unidentifiable iron fragments (n=15). The remaining objects consisted of 13 bottle glass fragments, two small buckle fragments, and a piece of shoe leather. Stratum B, a brown silt loam, also contained demolition debris. It was a thin layer, about 4cm thick and contained 74 artifacts. Sixty of these were unidentifiable iron fragments. The 14 remaining artifacts included four wire nails (post ca. 1890), three hooks, and seven glass sherds. Three of the glass fragments were not functionally identifiable, two were from bottles, and two were window glass. Two of the glass fragments were solarized purple, indicating that they were manufactured before ca. 1915. Stratum C appears to be a yard deposit from the occupation of the house, containing ash and clinker, and was 8 to 14 cm thick. It yielded 137 artifacts. Most of this material was functionally unidentifiable; 52 pieces of iron (probably can fragments), two pieces of rubber, five glass, and a piece of refined white earthenware. Most of the identifiable artifacts were architectural; 33 wire nails, two cut nails, four screws, and five window glass fragments. Food-related items were the next largest class of artifact. Most

¹¹ Interview with Informant A, 7/3/98, Interview with Informant C 8/7/98

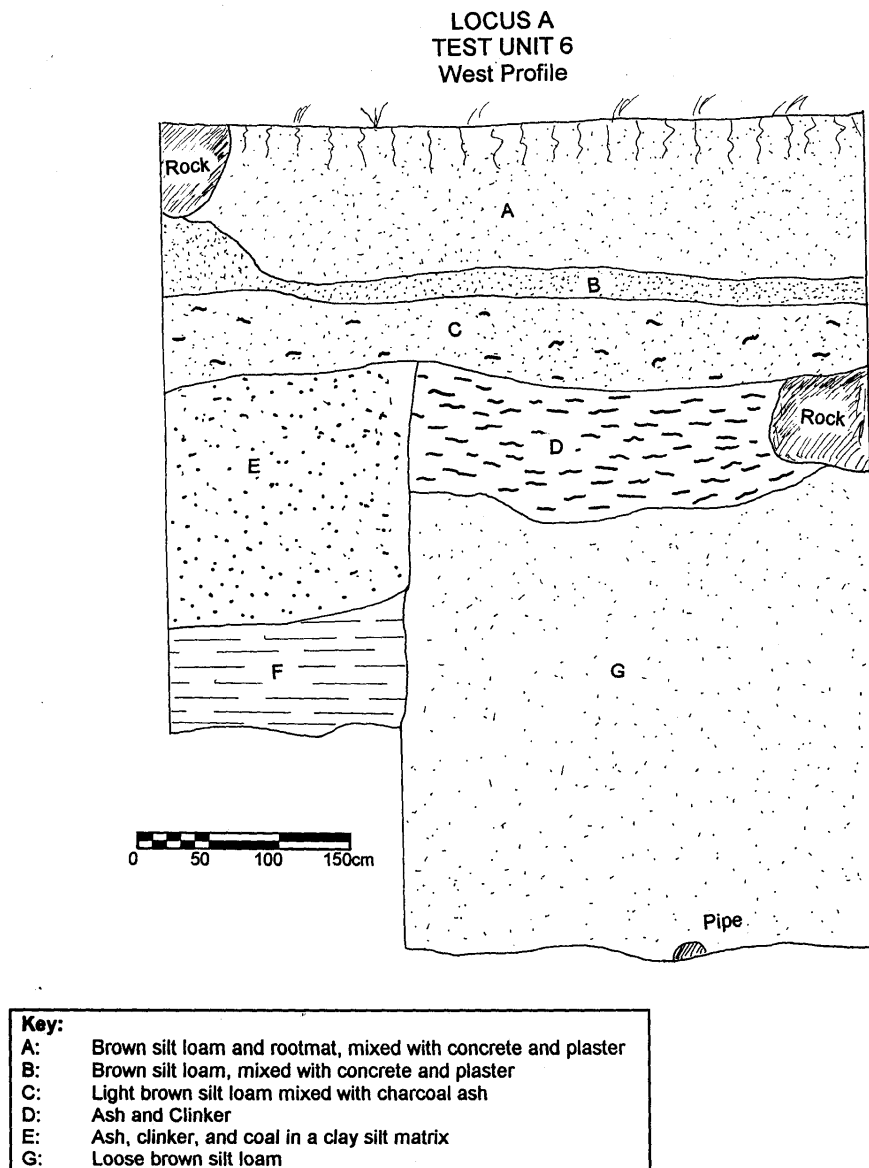


Figure 36: *Area A, Unit 6, West wall profile*

of these were long bone fragments (n=16), four bottle sherds, five crown cap fragments, and two pieces of refined white earthenware. In addition we recovered three pharmaceutical bottles, including one intact one. The latter was embossed "SLOAN'S LINIMENT/ MADE IN THE USA." The remaining objects from this stratum were a fragment of shell casing, one iron coat button and a shell button. The bottle glass dates this stratum to after 1903.

Beneath Stratum C, the pipe trench was filled with Stratum D, which overlay Strata G and H. The pipe trench was cut through Strata E and F. Stratum F is the natural subsoil. Stratum D was a loose deposit of ash and clinker, 18 to 20 cm thick. It contained 16 artifacts, consisting of shale fragments (n=7), window glass (n=3), bottle glass (n=3), cow bones (n=2), and a bisque doll fragment. Stratum D may reflect subsidence of the pipe trench and the use of the depression for trash disposal. Beneath Stratum D, Strata G and H are the fill with in the trench. Stratum G was a loose brown silty loam. Stratum H was slightly more compact. As these probably represent minor variations in the same fill deposit, the artifacts will be discussed together. We recovered 115 artifacts from the fill. These artifacts were comprised mainly of iron fragments (n=64) and wire nails (n=25). The remaining artifacts were can fragments (n=9), bottle sherds (n=5), a door hinge, leather scraps (n=2), unidentifiable glass (n=2), copper scraps (n=6), and the handle from an iron tool. The can fragments had crimped side-seams, which indicates that the pipe trench was filled after 1888 (Sutton and Arkush 1996:166) and the wire nails give a date after ca. 1890.

Stratum E was a sheet refuse deposit, consisting of ash, clinker and coal in a clay silt matrix. It was about 30cm thick. Stratum E was cut by the pipe trench and is the earliest cultural stratum in this unit. It contained 115 artifacts. Window glass (n=36) was the largest artifact type, followed by rodent bones (n=17), wire nails (n=15), and iron scraps (n=26). The domestic remains consisted of five sherds of refined white earthenware, one bottle fragment, and five pieces of a milk glass jar. The remaining objects were a possible piece of kerosene lamp, a furniture hinge, a screw, two apricot seeds, a piece of rubber and five sherds of unidentifiable glass. Beyond the wire nails (after ca.1890), there were no diagnostic artifacts from this stratum.

2. AREA B

Area B was on the east side of the road, across the stream. It consisted of approximately 10 domestic structures laid out in a crescent shape. The houses had substantial concrete foundations. In front of the structures (i.e. between the structures and the road) there was a substantial trash scatter.

During the mapping we collected 43 artifacts from the surface. As the collection was haphazard and directed towards potentially diagnostic artifacts, little analysis is possible, beyond forming an estimate of time and length of occupation in the area. We could identify the mode of manufacture of two bottles. Both were machine-made (post ca.1903) and were solarized purple indicating a manufacture date before ca.1915. In addition two other solarized fragments were recovered. These bottles do suggest an occupation in the earlier decades of the 20th century, although it is not possible to be more specific than this.

After the 1913-14 strike and the Ludlow Massacre, the Colorado Fuel and Iron Company set out to make cosmetic improvements in the coal camps of Southern Colorado. These improvements included the construction of new homes and a general expansion of the camp. The houses located at Locus B were part of this phase of occupation at Berwind. The building construction, oral information and surface scatter in this area suggested that this area may contain deposits that date to fairly soon after the strike. It was abandoned and subsequently destroyed in 1931.

This residential district is located on the far northern extent of the town site. It consists of ten domestic structures, five cement lined privies and the remains of three brick ovens (*Figure 35*). In addition there are at least four distinct sheet midden scatters in this area. These middens are significantly different from the midden encountered at Locus K. They tend to be shallow, are scattered near the houses and contain far less material than the pre-strike midden. As part of this year's testing program at Berwind the project archaeologists chose to test one of these middens, conduct a surface collection of a second midden scatter, execute auger tests in the cement lined privies and partially excavate one privy.

Feature 3—Midden

This midden extends in front of five of the house foundations at Locus B and measures approximately 40 meters by 20 meters. A total of six test units were excavated in the central portion of the midden in the shape of a cross. One unit was excavated in the center, and a trench was continued in four directions, following the natural stratigraphy. Five major strata were encountered (*Figure 37*), although all the five soil types were not present in all units. There did not appear to be any major disturbance or looting in this feature. Material excavated includes ceramics, bottle glass, canning jars, leather, bone, general metal and tin cans. It should be noted however that the size, volume and variety of artifacts excavated from this midden does not come close to the material excavated in the pre-strike area (Locus K). This portion of the midden extended only to a depth of approximately .15 meters below the surface. For purposes of discussion this block is designated as 3A (Feature 3, Block A).

An additional twelve units were excavated along the northern extent of the midden. The archaeologists designated this block as 3B (i.e., Feature 3, Block B). In this area the soils were significantly shallower, averaging only 0.05-0.07 meters in depth. These units were excavated primarily because material visible at the surface appeared to be distinct from that encountered in the central part of the midden. Soils in this portion of the midden were essentially a thin layer of topsoil, a transition to sub-soil, and bedrock.

Block 3A

This block contained four main strata (R, A, B, and C) with R being the latest and C the earliest. Strata A, B and C were cut by a pit, which was filled with strata FII at the bottom and FI at the top. Stratum R overlay FI.

Stratum R (the rootmat) (10YR 3/2 very dark grayish brown silt loam) was the last stratum deposited. It was about 10cm thick and yielded 243 artifacts, the bulk of which were Bottle Glass (36%, n=87), Unidentifiable Glass (21%, n=51), Food-Related items (18%, n=44), and Architectural material (15%, n=37). The only diagnostic artifacts were four sherds of solarized purple glass, 16 wire nails and a cut nail.

Stratum A was 15-25 cm of very dark gray (10YR 3/1) silt loam. It yielded 1,662 artifacts most of which were Bottle Glass (22%, n=370), Unidentifiable Iron (19%, n=322), Architectural artifacts (17%, n=275), Unidentifiable Glass (15%, n=250), Food Debris (10%, n=163), and Food-Related artifacts (10%, n=169). All of the six bottle sherds for which the method of manufacture could be identified were mold-blown (pre ca.1920). Three were crown cap finishes, and two crown caps were also recovered indicating a date of after 1893. The excavators also recovered a "FRATELLI-BRANCA-MILANO" seal. The architectural artifacts were nails (n=168), window glass (n=89) and assorted hardware. 161 of the nails were wire, six were cut nails, and one was not identifiable. The Food-Related artifacts were refined earthenware (n=143), porcelain (n=13), six stoneware sherds, one piece of coarse earthenware, and six fragments of glass. An 1899 penny provides a *terminus post quem* for this stratum.

Stratum B was a very dark grayish brown (10YR3/2) silt loam and yielded 308 individual artifacts and 94g of can fragments. The artifact profile was similar to that of Stratum C below, being composed largely of Food Debris (18%, n=55), Bottle Glass (16%) and Unidentifiable Glass (14%) (n=49 and 43 respectively), Architectural material (13%, n=39) and Food-Related artifacts (12%, n=36). Six of the bottle glass sherds were solarized purple and were manufactured before ca 1917. One piece of bottle glass was mold blown (pre ca.1920). Other diagnostic artifacts consisted of a Hutchinson stopper (1879-1915) (Sutton and Arkush 1996:177) and a crown cap (post 1893). The architectural material was window glass (n=20), 14 wire nails, one cut nail, and four that were unidentifiable. The Food Debris was all bones, including three bird bones, three cattle, and two possible sheep bones. The remaining bones were all unidentifiable mammals.

Stratum C was the earliest stratum deposited and consisted of 5-10cm of dark brown (10YR 3/3) sandy clay loam. It yielded 146 individual artifacts and 113g of can fragments. The artifacts were mainly Food Debris (32%, n=47) Unidentifiable Glass (18%, n=26), Bottle Glass (18%, n=27), Food-related artifacts (13%, n=19), and Architectural material (11%, n=16). The Food Debris was all bone. The identifiable bones were one cow, one rabbit, a possible goat bone, and three possible pig bones. The glass included three fragments of solarized purple glass (pre ca.1917), and two solarized yellow (probably post ca. 1915). The Food-related artifacts were, other than a beer stein handle, a sherd of porcelain, and a saltshaker lid, all white refined earthenware sherds. The 16 Architectural artifacts were wire nails (n=14) and two pieces of window glass. Also recovered was a button embossed "PRINGLES PAT JULY 1882."

Strata A, B and C were cut through by a pit that was filled with **Strata FII and FI**. FII was the earlier stratum; 10-25cm of very dark yellowish brown (10YR 4/4) brown sandy clay, and containing 77 artifacts. These were mainly shoe fragments (65%, n=50). The remaining 27 artifacts consisted of Bottle Glass (n=6), Food-Related artifacts (n=6), Food Debris (n=9), Architectural material (n=3), a crown bottle cap, a piece of wood, and a fragment of slate tablet. The crown cap (post 1893) was the only diagnostic artifact. Stratum FI overlay FII, and was 15-30 cm of very dark grayish brown (10YR 3/2) sandy clay loam. FI contained 102 artifacts, mainly Bottle Glass and Unidentifiable Glass, Food Debris, Unidentifiable Iron, Food-Related Items, and Architectural Material. The only diagnostic artifacts recovered were seven wire nails (post ca. 1880), a sherd of blown bottle glass (pre ca.1920), and three pieces of solarized purple glass (pre ca.1917).

Block 3B

The stratigraphy in this block consisted of three main strata designated R, A, and B. Within these strata were three other contexts, C, which was the fill in what appears to be a posthole, and F and D, which were lenses.

Stratum R was the rootmat. It contained 1,381 artifacts: Unidentifiable Glass (23%, n=314) and Bottle Glass (28%, n=378), Food-Related artifacts (20%, n=267) and Architectural material (14%, n=188). Other than 66 sherds of solarized purple glass, none of the glass was diagnostic. One sherd was a base embossed "H.J. HEINZ / 57". The excavators also recovered a crown cap (post 1893). The Architectural material consisted of 89 wire nails, 10 cut nails, 84 pieces of window glass, and miscellaneous hardware. Some of the other artifacts recovered from Stratum R include a silver religious medallion embossed "SACRE COEUR DE JESUS" and "VIRGO CARMELI", several bisque porcelain doll fragments, a jack (from the children's game), an "UNDERHILL BRAND" grommet, a saltshaker, and the tin alloy eraser holder from a pencil.

Stratum A was also a very dark grayish brown (10YR 3/2) silt loam. It contained 331 artifacts. The overall artifact distribution was similar to that of Stratum B, consisting mainly of Bottle Glass (21%, n=70) and Unidentifiable Glass (22%, n=73), followed by Food-Related artifacts (18%, n=60) and Food Debris (14%, n=46). The only diagnostics were 28 wire nails and nine sherds of solarized purple glass. Among the other artifacts were a "BUFFALO BRAND" button and what appears the pin for a medal. The latter is a small brass "plaque" with two small chains on the bottom and a pin on the back.

Stratum B, a very dark grayish brown (10YR 3/2) silt loam with ash and coal, was extensive throughout most of Block 3B. It yielded 2,029 artifacts, largely Bottle Glass (23%, n=473) and Unidentifiable Glass (23%, n=457). After the glass, Food-Related artifacts (17%, n=348), Unidentifiable Iron fragments (15%, n=313), Architectural Material (8%, n=170), and Food Debris (8%, n=167). The diagnostic glass included four bottle finishes with identifiable manufacture techniques; two were mold-blown and two were machine-made. Eighty-one of the glass sherds were also solarized purple, indicating a pre-1917 manufacture date. The only other diagnostics from this stratum were 80 wire nails and a fragment of an electric light bulb.

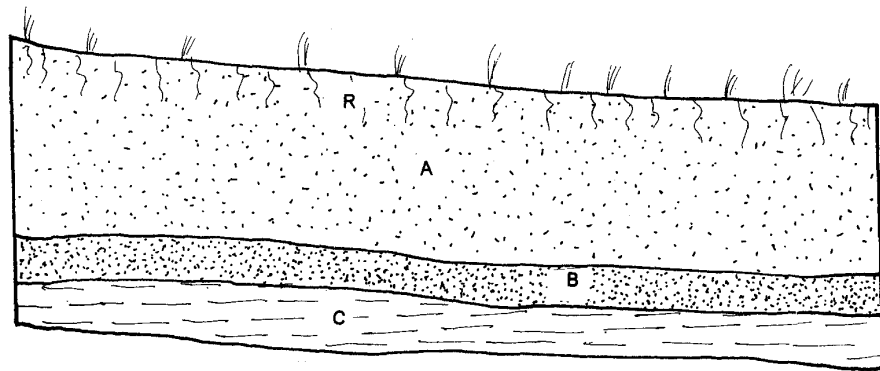
Stratum C was the fill in what appears to be a posthole in the subsoil. This was in Unit 5097/4986. If it was a posthole, it predated most of the midden as Stratum B overlay it. One hundred and eight artifacts came from this context, the bulk of which were architectural material (39%, n=42) and Unidentifiable Iron scraps (20%, n=22). Bottle and Unidentifiable Glass were 30% of the assemblage. The Architectural material consisted of 30 pieces of wooden post, 11 wire nails, and a sherd of window glass. Besides the nails, the only other diagnostics were two sherds of solarized purple glass.

Stratum D overlay Stratum F. This was a lens of black (10YR 2/1) clay loam. It contained 279 artifacts. These were primarily Bottle Glass (30%) and Unidentifiable Glass (15%, n=34), Food Debris (16%, n=44), Food-Related Artifacts (15%, n=41), and Unidentifiable Iron (12%, n=34). Other than 14 wire nails and seven fragments of solarized purple glass, none of this material was particularly diagnostic.

Stratum F was the earliest one deposited. It was a lens of dark brown (7.5YR 3/2) sandy loam overlying the subsoil. The excavators recovered 154 artifacts from F, 64% of which were Unidentifiable Iron (n=99). Food Debris (n=10), Bottle Glass (n=10)

and Unidentifiable Copper Alloy fragments were the next largest groups. None of the material from Stratum was temporally diagnostic.

In conclusion, on the archaeological evidence alone the Feature 3 midden definitely dates to after 1882, on the basis of an embossed button recovered from Stratum C of Block 3A, and, based on the number of wire nails probably after the 1890s. However without diagnostic maker's marks or bottle embossing it is difficult to determine precise T.P.Q.s for the early 20th century. This midden does appear to be later than the Locus K midden (Feature 1) on the basis of bottle technology. Other than a single machine-made bottle recovered from a looter's pit, all the technologically identifiable bottle glass from Feature 1 was mold-blown, suggesting that deposition in that midden ceased before or shortly after 1904. In contrast two machine-made bottle sherds were recovered from good contexts from Feature 3 indicating that deposition was continuing after 1904. The association of the midden with a neighborhood of concrete-foundation houses and concrete privies that were subject to cleaning does indicate that portions of the midden date to after 1914 when there were improvements to the CF&I company towns in the aftermath of the strike.

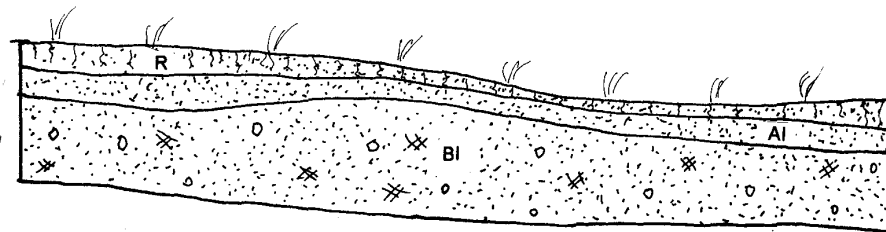


Feature 3
Block 3A
N5078/E4988
South Profile

Key:

- R Rootmat
- A Very dark gray (10YR 3/1) silt loam
- B Very dark grayish brown (10YR3/2) silt loam
- C Dark brown (10YR 3/3) sandy clay loam

0 50 100 150cm



Feature 3
Block 3B
N5096/E4987
West Profile

Key:

- R Rootmat
- A Very dark grayish brown (10YR 3/2) silt loam
- B Very dark grayish brown (10YR 3/2) silt loam with ash and coal

Figure 37: Area B, Feature 3 midden.

Feature 4—Privy

Encouraged by augering results that indicated a heavy layer of bone, the archaeologists began the excavation of a single cement lined privy at Locus B. The privy was approximately 90 cm deep. Excavators encountered the skeleton of a juvenile cow that had been stuffed into the open privy hole and then buried. Stratigraphy in Feature 4 consisted of a shallow layer of dark brown clay (Stratum B), overlain by a thick uniform fill layer (Stratum A), which the cow rested in, and a layer that had eroded into the hole after the privy was filled (Stratum AI). Subsequent auger test in the remaining four privies at this locale indicate that it is most likely that these features were cleaned out and then back-filled with a uniform gray silty fill.

Stratum A was a thick (80cm) layer of dark grayish brown (10YR 3/2) clay loam fill. Stratum A contained 273 artifacts, of which 87% (n=237) were a single complete cow skeleton that had been incorporated into the fill. Most of the remaining 36 artifacts were Bottle Glass (n=19) and Food-Related artifacts (n=8). None of the artifacts were diagnostic.

Stratum AI, was the result of silting and erosion. It was about 14cm of loose very dark grayish brown (10YR 3/2) clay loam mixed with concrete fragments. The only “artifact” recovered from AI was a seed, and is probably of natural origin.

Stratum B was 4-6 cm of dark brown (7.5YR 3/2) unconsolidated clay overlying the natural subsoil. It yielded 98 artifacts, primarily Bottle Glass (n=28) and Unidentifiable Iron (n=55), along with Architectural material (n=6), possible rodent bones (n=5), and four Personal artifacts. The bottle glass all appears to be from a single bottle embossed "DR W. [B.] CALDWELL'S SY[RUP] [P]EP[SIN]/ MONTICELLO [ILLINOIS]." The bottle is machine-made (post 1904) with a cork cap finish. Caldwell's syrup pepsin was manufactured from 1895-1962 (Fike 1987). Excavators also recovered a copper alloy disk that might be a coin, but is too corroded to tell, and a shell button. It is likely that this material is remnant privy deposit.

Although the archaeologists had expected to find, at very least, destruction debris in these features, further information gathered from oral history interviews has helped clarify why these features are so seemingly “clean.” When the town was closed and vacated in 1931 the Colorado Fuel & Iron Company paid several contractors to dismantle the standing structures, so that they did not have to pay taxes on improved properties. The contractors came into Berwind, salvaged most of the lumber, hardware, and essentially anything they could, and sold it. This all occurred in the middle of the Great Depression and thus it is not surprising that this kind of materially conservative behavior was going on, and that very little debris associated with the destruction of the houses in this area is present.

Feature 5—Midden

In addition to the excavations of Features 3 and 4, a surface collection was conducted of a midden deposit eroding from a drainage. It measured approximately 30m by 8m and yielded 1,799 artifacts (Table 1). Most of this material was Bottle Glass (51%, n=920), Unidentifiable Glass (22%, n=396), and Food-Related artifacts (22%, n=396).

| GROUP | Count | |
|----------------------|-------|------|
| Architecture | 36 | 2% |
| Arms | 4 | 0% |
| Bottle glass | 920 | 51% |
| Cans | 1 | 0% |
| Food-related | 396 | 22% |
| Furnishings | 2 | 0% |
| Hygiene | 33 | 2% |
| Industrial | 1 | 0% |
| Personal | 10 | 1% |
| Tools | 1 | 0% |
| Toys | 1 | 0% |
| Writing | 1 | 0% |
| Unidentifiable | 1 | 0% |
| Unidentifiable iron | 12 | 1% |
| Unidentifiable glass | 380 | 21% |
| | 1799 | 100% |

Table 1: Artifact Groups, Feature 5

Of the 21 bottle fragments that were technologically identifiable, three were blown in mold and 18 were machine-made, giving a date for the midden after 1904. 118 of the glass sherds were solarized, suggesting that there was deposition before ca. 1917. Several bottles were embossed. One was a base embossed "203..SWITT & COMPANY..USA. PAT. FEB. 10.O3" and another was an "ACEITE MEXICANO" bottle. A fragment of a "HEINZ" bottle was also recovered. The Food-Related material contained an unusually large number of glass artifacts (n=160). Many of these were canning jar lid liner sherds (n=89). Of these, 21 (from four lid liners) were embossed. Eighteen sherds from two liners were embossed "BOYD'S GENUINE PORCELAIN." Two more from a single liners were embossed "..PORCELAIN" (probably Boyd's), and one sherd was "PAT-11-22-10", indicating deposition was occurring in or after 1910. Forty-one glass jar fragments are probably associated with the lid liners, as are 21 zinc lids. The remaining glass Food-Related artifacts were from hollow vessels; two from measuring cups, 11 from steins, 15 tumbler sherds, and the rest being from pressed glass vessels.

The ceramic Food-Related artifacts from Feature 5 contained a large proportion of porcelain (n=30). A piece was from a cup, and the remainder from decorated hollow vessels. The refined earthenware (n=148) were mainly undecorated sherds (n=131). There were no maker's marks. Stoneware sherds (n=37) comprised the remainder of the Food-Related artifacts. Among the other artifacts recovered were a piece of a balance marked "EXCELSIOR IMPROVED SPRING BALANCE" and a porcelain doll's face.

Feature 5 is later than Feature 3. The ratio of mold-blown to machine-made bottle sherds from Feature 5 is 1:6, whereas in Feature 3 it was nearly the reverse, 5.5:1. The mark on a canning jar lid liner indicates deposition after 1910, and the presence of solarized glass suggests deposition was occurring before or shortly after ca.1917. In conclusion, Locus B does contain deposits that date to the period after the 1913 strike (Feature 5), although the earliest occupation of this locus may date to the pre-strike period. The concrete privies here contain little useful information as they were regularly

cleaned out, although there may be remnant deposits at the bottom of some of them. The fill in these privies dates to the demolition and abandonment of Berwind if not later. The midden deposits are significant resources. Although the deposits are shallow there is little evidence of disturbance and they have the potential to yield information on company town life in the period immediately after the 1913 strike, if not before.

3. *AREA C*

Area C was on the west side of the road, south of Area A. We identified 12 structures and six privies. Historical photos show that these were frame structure on stone foundations and that they may be earlier, based on the state of repair in the photos. We did not collect any artifacts from this area.

4. *AREA D*

This area is on the east side of the road and is south of Area B. It includes eight industrial structures on both sides of the stream, including bridge footings. There is also a large slack pile in this area. Historical photos show large industrial and railroad buildings here. We did not collect any artifacts from this area.

5. *AREA E*

Area E was on the west side of the road and immediately south of Area C. The boundaries of this area are marked by a ravine to the north and an absence of structures to the south. The structures in this area appear to be associated with the management of the mine (the mine office, Features 89 and 90), the jail, and housing for management. A mine entrance also lies in this area. Feature 67 may be a hotel. We recovered no artifacts from this area.

6. *AREA F*

This area was on the east side of the road and immediately adjacent to Area D. The structures here are mainly domestic (n=13), along with nine privies, and four ovens. This area was shown on the 1911 map. We retrieved seven artifacts during the mapping phase. Among these was metal scrip token that had been drilled at the top, presumably for use as a decorative item. The scrip was embossed "25 CENTS IN TRADE/ TOBACCO, CO."

Project archaeologists excavated two units (Units 7 and 8) in this area. Unit 7 was eight meters north of the northeast corner of Feature 182. Unit 8 was 6 meters east of east wall of Feature 182. **Unit 7** was about 16 cm deep and contained three cultural strata, designated A, B, and C. Thirty-three artifacts were also collected from the surface. These were predominantly window and bottle glass (n=8 and n=9 respectively), refined white earthenware sherds (n=5) and wire nails (n=4). The remaining artifacts included a bisque doll arm, a stoneware tobacco pipe fragment, and a copper alloy pocket watch cover.

Stratum A was a very dark brown silty sandy loam, rootmat with brick flecks and coal. It was 4 to 10 cm thick and yielded 162 artifacts. The bulk of these artifacts were fragments from a shoe (n=27), window glass (n=39), nails (n=21, 18 of which were wire), white refined earthenware sherds (n=30), and unidentifiable iron (n=24). The remaining artifacts were bottle glass (n=9), an iron pulley, and some wood fragments.

Stratum B was 2-5 cm of very dark brown silty loam, with moderate amounts of brick and coal. Stratum B contained 178 artifacts. Wire nails (n=30), window glass (n=16), white refined earthenware (n=30), bone (n=20), bottle glass (n=20), and unidentifiable iron fragments (n=56) comprised the bulk of this material. Two of the bottle sherds were solarized purple.

Stratum C was 4-6 cm of compact loam flecked with charcoal. Eight artifacts were recovered from this stratum; 6 pieces of wood, and two fragments of a hammer head. None of this material was diagnostic.

Unit 8 had seven stratigraphic contexts; Strata A, B, C, D, F, G, and H. The top 3 to 10 cm of Strata G and H were not initially detected by the excavators and were excavated as Stratum E. Stratum H was root disturbance underlying Stratum A. Three artifacts were recovered from the surface; two pieces of window glass and a plastic comb. Stratum A was the rootmat, 4-6 cm of very dark brown silt loam. Two pieces of window glass were recovered from this stratum. Stratum B was 6-10 cm of light brown to brown clay loam. We recovered 47 artifacts from Stratum B. Most of these were window glass (n=36). The rest were five pieces of bottle glass, four fragments of some sort of coarse industrial porcelain, a piece of plaster, and a copper alloy button. Stratum C was a thin (2-4cm) band of yellowish brown clay, which yielded 37 artifacts. Most of this assemblage was window glass (n=23) and nails (n=5). Four of the nails were wire (post ca. 1890) and one was a cut nail. The remaining artifacts were three pieces of bottle glass, and a single piece each of lamp chimney glass, unidentifiable glass, refined earthenware, and unidentifiable plastic. Stratum D was 2-6 cm of dark brown silty loam with coal and clinker. As with the strata above, the largest artifact type recovered was window glass sherds, which were 20 of the 44 artifacts in this stratum. Unidentifiable iron and glass fragments (n=11 and 5 respectively) were the next largest types. A single wire nail was also recovered along with a piece each of a porcelain cup or bowl, bottle glass, melted synthetic, and three cut cow long bone fragments.

Stratum E was is actually the top 3-10 cm of Strata G and H, so these 84 artifacts are combined from two separate stratigraphic contexts. These were mainly window glass (n=30), fragments of cow bones (n=24), unidentifiable iron (n=8), refined white earthenware (n=7), and wire nails (n=5). The glass artifacts were made up of two pieces of bottle glass, a fragment of lamp chimney, a tumbler sherd, and two pieces of unidentifiable glass. The remaining artifacts were a fragment of a peach pit and a mining tag. Coal miners used mining tags to identify themselves and their carts. The tags were hung on the carts of coal that left the mine to be weighed.

Stratum G overlay Stratum F. It was a compact, charcoal-flecked, dark brown loam and gravel. It contained 16 artifacts, window glass (n=2), iron fragments (n=7), porcelain flatware (n=3), and one piece each of bone, bottle glass, lamp chimney, and a rubber button. Stratum F was a soft dark brown loam flecked with charcoal and with a high organic content. It may be a yard or midden deposit. Stratum F contained 37 artifacts, primarily window glass (n=118), wire nails (n=6), unidentifiable iron (n=5), and bone (n=3). Bottle glass (n=2) and an iron button and one each of refined white earthenware and unidentifiable glass made up the rest of the assemblage from Stratum F. None of this material was chronologically diagnostic.

7. *AREA G*

Area G was a thin scatter of structures south of Area E, west of the road. We identified six architectural features in an area approximately 120 m north-south and 30 m east-west.

8. *AREA H*

Area H was south of Area G, west of the road. Steep slopes lay to the north and south. We counted approximately 22 domestic structures here, along with 12 privies, two ovens, and a mine entrance. Feature 194 was a church and is shown on a historical photo. Features 150, 141, and 146 were shown on the 1911 map of Berwind. Features 128, 130, and 131 comprised the CF&I company store complex.

We sampled 14 artifacts from the vicinity of Feature 255, 12 from Feature 200, and one from Feature 146. The artifacts included a thimble, machine-made bottles (post 1904) and a small corked medicine vial.

9. *AREA J*

Area J was a large flat area on the east side of the canyon road and south of Area F. It consisted mainly of industrial structures and features.

10. *AREA K*

Area K was is on the east side of the road, south of Area J, and consisted of what appear to be early domestic structures. During the 1998 survey of Berwind, archaeologists were able to identify only a single area that appeared to have undisturbed deposits associated with the early occupation of the town. Because this locus was abandoned as a domestic area sometime around 1916, there seems to have been little impact on the archaeological deposits by later activity. The pedestrian survey in 1998 noted the presence of a midden on top of a knoll in Locus K. The surface scatter associated with this midden suggested a relatively early date. In addition, photographs of the town gathered from Camp & Plant Magazine depicted this residential district sometime around 1902. A 1911 map of the town of Berwind, supported photographic evidence, showing nine houses in this area. Information gathered from The Industrial Bulletin Magazine as well as oral history informants indicated that the domestic structures at this locale were destroyed in 1916 when a large middle school was built here.

Test excavations in 1998 focused on three areas that appear to date to the pre-strike era and survived the construction of the middle school. There was a midden south of the structures that appears to date to before ca. 1920. We excavated three units in this area, Units 3, 4, and 5. Unit 3 was placed in the midden (Feature 244), Unit 5 was placed 5 m northwest of Feature 233, and Unit 6 2m southeast of Feature 230. We sampled 53 artifacts from this area, including eight pieces of solarized glass bottle (pre ca. 1915), a shoulder seal from a wine bottle embossed "FRATELLI BRANCA/MILANO," and a porcelain pipe bowl with a hand-painted crest. The Fratelli Branca Distillery of Milan was a manufacturer of liqueurs and wines from 1845 on (Beverage Industry News 1999). Excavations during the 1999 field season focused on more extensive testing of the pre-strike midden feature (now re-labeled Feature 1 for the project records) and excavation of a single pre-strike privy feature (Feature 2) associated with one of the duplex houses.

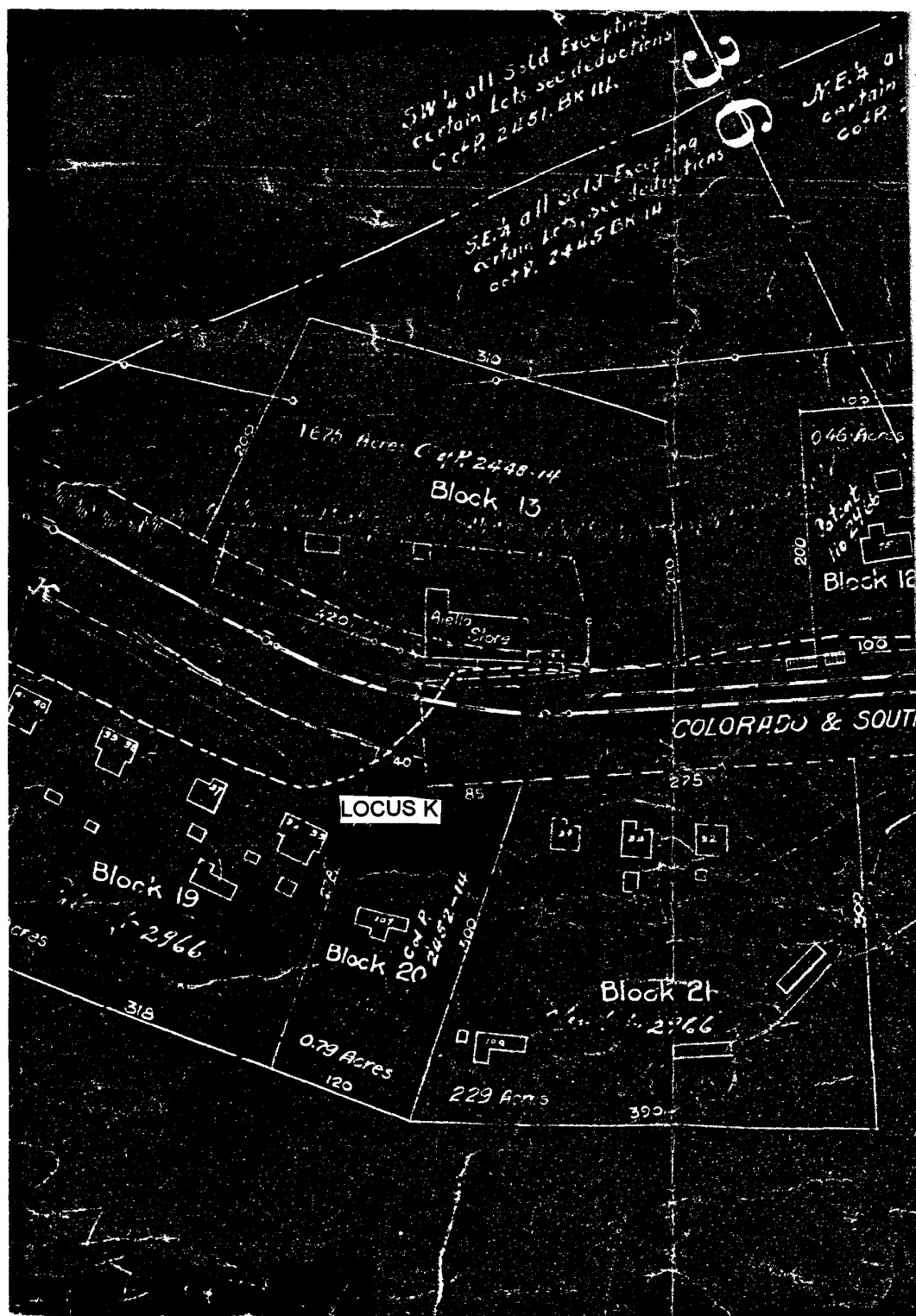


Figure 38: 1911 Map showing Berwind, Locus K



Figure 39: Photograph of Berwind, 1911

Test Unit 3 contained approximately one meter of midden deposits and 8 strata, designated A-H (*Figure 6*). This unit produced 2700 artifacts including several leather shoes, a wine bottle, medicine bottles, and the remains of several tin cans, one with a label still intact. In addition we found a great deal of glass, ceramics, butchered bone and clothing accoutrements. The soil conditions in this feature allowed such items as cloth, seeds, and eggshells to be preserved. The presence of wire nails in the lower levels of the midden suggests that the deposit was formed after 1900. The high concentration of amethyst glass throughout the midden suggests that the refuse accumulated before 1915. At this point we can date the feature between these years.

Stratum A was predominantly coal, clinker and slag. We recovered 158 artifacts from this stratum. Unidentified glass sherds (n=45) were the largest group, followed by bottle glass (n=39) and white refined earthenware (n=33). Twelve of the bottle glass fragments were solarized purple (pre ca.1915) and 13 were aqua, indicating a manufacture date earlier in the 20th century. Stratum B was similar to Stratum A but mixed with brown loam. It contained 368 artifacts, mainly leather shoe fragments (n=64), bottle glass (n=60), unidentifiable iron scraps (n=65) and glass sherds (n=42), and bone (n=31). The remaining artifacts included white refined earthenware (n=33), wire nails (n=23), and cut nails (n=2). Stratum C was a medium brown loam mixed with coal and clinker and contained 228 artifacts. These included unidentifiable iron scraps (n=65), shoe fragments (n=30), bone fragments (n=30), refined earthenware (n=18), coarse earthenware (n=3), nails (n=28, 27 wire, 1 cut), a mining tag, and a porcelain doll part. Stratum D was a layer of ash and rocks containing 402 artifacts: mainly iron scraps (n=100), bottle glass (n=95), bone (n=23), and refined earthenware (n=32). Other artifacts were a mining tag, a doll part, lamp chimney sherds (n=15), and shoe parts (n=5). Stratum E was an ash layer containing large pieces of coal and clinker. We recovered 370 artifacts from this stratum. These included can fragments (n=100), bone (n=30), refined earthenware (n=13), porcelain sherds (n=15), including a doll part, and nails (n=66, 64 wire nails and 2 cut nails). Stratum F was a layer of brown loam mixed with coal. Of the 397 artifacts recovered from this stratum, 220 were iron scraps. Also recovered from this stratum were 40 bone fragments, 15 iron buttons, 1 shell button, 18 fragments of bottle glass, 25 scraps of textile, and 32 pieces of shoe leather. Stratum G

was a loose reddish brown loam containing 225 artifacts. 70 of these were iron scraps, 33 were bottle glass, and 35 were bone. The remaining artifacts included a mining tag, one shell button, 11 fragments of stoneware, and five pieces of refined earthenware. Stratum H, containing 303 artifacts, is the bottom stratum of the midden. It was a loose brown loam. The majority of the artifacts were iron scraps (n=111), eggshell (n=40), can fragments (n=50), and 20 scraps of paper label. The label was in English and German and appears to be for detergent. Other artifacts were 3 fragments of watermelon seed, a horseshoe, 12 nails, eight bottle glass, and 15 textile fragments.

Unit 4 was placed in the back yard area of Feature 230, a stone foundation. This unit produced a variety of domestic refuse including an enamelware ladle, spoons, tin can parts, ceramics, bottle glass and pencil bits. The occupational layers were located approximately .20 meters from the surface. We also encountered a concentration of rocks at this level that may have been the back stoop to the structure, or wall fall from the destruction of the building.

Unit 4 contained eight cultural stratigraphic contexts, designated Strata A through H. Strata G and H were either fill within a feature or, more likely, sediment that has been disturbed by root action.

Stratum A was a loose grayish brown silt loam. We excavated 41 artifacts from this stratum, primarily nails (n=14, 13 of which were wire) and window glass (n=15). Five ceramic sherds were recovered all of which were porcelain. The remaining artifacts included a bone button and three fragments of bottle glass. Stratum B was a compact grayish brown silt loam with moderate amounts of coal clinker. It contained 144 artifacts. Nails (n=36), window glass (n=29), unidentifiable iron (n=24), and unidentifiable glass (n=17) comprised the bulk of this assemblage. As with Stratum A, five ceramics were recovered, all porcelain. Among the other artifacts were a British silver coin, dating to 1864, which was worn as a pendant or charm, an enameled tinware ladle, a key, a porcelain button, and three pieces from a copper alloy toy, apparently of a horse drawn vehicle. We recovered 11 pieces of bottle glass, including four fragments from a single bottle embossed "PH. SCHNEIDE.../CONTEN..."

Stratum C was a compact dark brown silty clay loam with brick, moderate clinker, and several large rocks. It contained 151 artifacts, primarily nails (n=58), window glass (n=20), bone (n=15), and unidentifiable iron (n=14). The ceramics (n=6) were all porcelain. Among the other artifacts were a seven buttons or button fragments (four from one shell button, one copper alloy one, and two iron), a U.S. penny (1900 to 1910), a synthetic comb, two white glass beads, and a safety pin. Stratum D contained 134 artifacts. This stratum was a compact, dark gray, clay loam. Most of the assemblage was composed of nails (n=32), unidentifiable iron (n=25), window glass (n=15), bone (n=16) and bottle glass (n=34). There were no ceramics recovered from this context. Stratum E was a compact grayish brown loam mottled with light yellowish brown sandy loam. It contained 36 artifacts, primarily unidentifiable iron (n=10), unidentifiable glass (n=6), bone (n=7), and wood fragments (n=6). We also recovered three wire nails, three bottle fragments, and a rat skull. Stratum F was a disturbed area within Stratum E and was a very dark brown clay loam with charcoal flecking. It yielded 57 artifacts, composed largely of unidentifiable iron (n=31), bone (n=8), and nails (n=11). Eight of the nails were wire and four were cut. Stratum H underlay Stratum E and was a very dark brown clay loam. It contained 5 artifacts--a rodent bone, two shoe eyes, a wire nail, and a piece

of unidentifiable iron. Stratum G directly underlay Stratum F, and appears to be disturbance within Stratum H. Stratum G was a loose, very dark brown, clay loam. It contained three artifacts, a rodent bone and two scraps of iron. The number of artifacts recovered from Strata G and H suggest that these strata may be natural and that the artifacts are intrusive.

Unit 5 was placed five meters west of Feature 233, a domestic foundation. This unit was rather shallow in comparison to our other units, extending only .20 meters below the surface. This yard area, located in front of the structure appears to have been a high traffic and activity area. The artifacts excavated from this unit are very small and appear to have been pressed into the hard soil. Unit 5 contained three cultural layers. Stratum A was the rootmat and contained 161 artifacts. Of these 120 were window glass sherds. The remaining artifacts included a bisque doll fragment, four sherds of refined earthenware, two fragments of porcelain dinnerware, two slate pencils, and seven wire nails. Stratum B was a brown silty loam containing 122 artifacts. These were mainly window glass (n=30), unidentifiable iron scraps (n=29), bottle glass (n=21), bone (n=10), and bottle caps (n=5). Two of the bottle glass sherds were from a machine-made bottle giving a terminus post quem of 1903. Stratum C was a layer of hard-packed clay loam. It contained 17 artifacts, and is probably an interface between Stratum B and the subsoil. Most of the artifacts were iron scraps (n=8), and included a blue glass bead and a mining tag.

Feature 1

This midden consists of a dense scatter of artifacts, coal and clinker. The scatter was located on a hill above the domestic structures, and measured approximately 25 meters by 11 meters. During the 1998 field season a single test unit was excavated into the midden. Analysis of the artifacts and stratigraphy indicated that while some intact strata were present, there was also some degree of disturbance. Our objectives for the 1999 field season were to assess the nature and degree of disturbance, determine a more precise date range for the feature, and achieve a fuller understanding of the complex stratigraphy in this feature.

A total of nine test units were excavated into Feature 1 as a J-shaped trench, beginning with two units on either end of the trench and then following the soil profiles until the trench was complete. Excavation focused on identification and removal of individual natural strata including ash lenses and discrete soil deposits. Middens often contain subtle stratigraphic differences that are not immediately visible in one-meter units, or conversely minor variations within strata may often be assigned different designations in separated units.

For purposes of analysis, the archaeologists grouped the strata as excavated into a universal stratigraphic sequence, correlating the individual units strata into a single sequence. In this discussion only the Universal Stratum designation will be used. The equivalent unit designations are given in Table 2 below, and the general soil descriptions for the strata in Table 3.

| Universal Stratum | N496/E498 | N496/E499 | N497/E499 | N498/E499 | N498/E498 | N498/E497 | N498/E496 |
|-------------------|-----------|-----------|-----------|-----------|----------------------|-------------|-----------|
| BI | | | AI, FIV | A1-5, CI | CI, DI, DII, EI, EII | AI, BI, CIV | |
| AI | AII, BI | A1, A2 | AII | BI | AI | | A1-3 |

| | | | | | | | |
|---------|-----------|----|---------|---------|---------|---------|--------|
| CI | CII, AIII | B1 | AIII | BII | | CI, CII | A4, A5 |
| DI | | | | | | DI | |
| DII | | | | BIII | | | |
| EI | | | | | | EI | B1 |
| EII | DI | B2 | BII, DI | | | | |
| EIII | EI | B3 | | | | | |
| EIV | | | | | | | |
| EV | | | | | | | |
| FI | FI, FII | C1 | FII, | FIII | FI, FII | FI | B2 |
| FIII | FIII, FVI | D1 | FV, FVI | FV, FVI | FIII | FIII | B3, C1 |
| SUBSOIL | | E1 | GI | | | | |

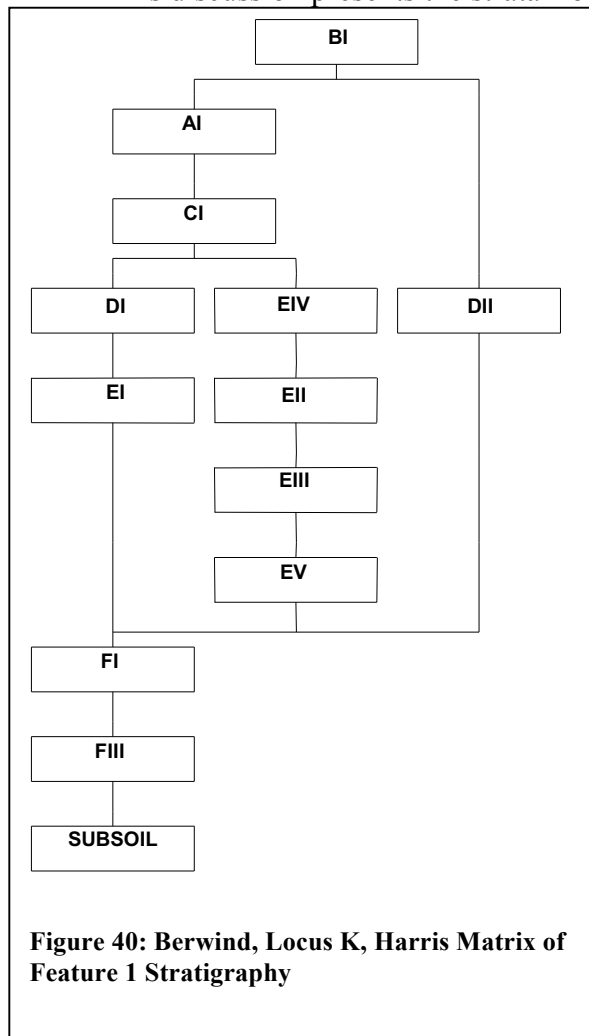
Table 2: Universal Stratum designations and equivalent field designations, Feature 1.

Figure 40 is a Harris matrix of the stratigraphic sequence of the Feature 1 midden. It is possible that many of these strata could be further correlated; particularly the contexts between CI and FI, but the contacts were destroyed by an extensive looter's pit (BI).

| Stratum | Description |
|---------|---|
| BI | Looter's pit. Loose very dark grayish (10YR 3/2) brown silt loam mixed with gravel |
| AI | Very dark grayish brown (10YR 3/2) silt loam mottled with yellowish brown (10YR 3/4) clay |
| CI | Very dark gray (10YR 3/1) compact silt loam with coal |
| DI | Black (10YR 2/1) loam with gravel, coal, and clinker. Lots of textile |
| DII | Very dark grayish brown (10YR 3/2) clay loam. |
| EI | Black (10YR 2/1) loam with gravel, coal, and clinker. |
| EII | Iron debris |
| EIII | Black (7.5YR 2.5/1) silt loam with heavy coal and clinker |
| EIV | Dark Brown (7.5YR 3/2) loam with ash, moderate coal and clinker. |
| EV | Very dark gray (10YR 3/1) ash. |
| FI | Very dark grayish brown ash (10YR 3/2) ash with coal and clinker. |
| FIII | Black (10YR 2/1) loam with organic material, cans, and cultural material. |
| Subsoil | Brown (10YR 4/3) silty clay |

Table 3: Universal strata and soil descriptions, Feature 1

This discussion presents the strata from in alpha-numeric order. Please refer to the chart for how the strata fit together.



Stratum AI was a rootmat and overburden over the midden, consisting of a very dark grayish brown silt loam, which contained 2,602 artifacts from AI and 997g of can fragments. The bulk of this material was Bottle Glass (18%, n=584), Architectural material (18%, n=461), Personal artifacts (15%, n=379), Food Debris (13%, n=342), and Food-Related artifacts (12%, n=309). The mode of manufacture could be identified for 18 bottles, all of which were mold blown. Five bottle sherds had identifiable embossing. One was a complete bottle embossed "HOOD'S / SARSA / PARILLA / C.I. HOOD & CO. / LOWELL MASS." Another was a fragment embossed "...INGHAM./ NY U.S.A.". This was most probably "DOCTOR KILMER'S SWAMP ROOT KIDNEY LIVER AND BLADDER CURE, BINGHAMTON NY U.S.A." These were both popular patent medicines in the late 19th century and continuing into the 20th. The three other marks were "HJ HEINZ CO 57", "P.C. CO", and "AB / P 5".

The Architectural material consisted of 287 nails, 103 pieces of window glass, and assorted pieces of hardware. Of the nails, 217 were wire nails, 38 were cut, and the rest could not be identified. Shoe parts (n=339) comprised the bulk of the Personal artifacts. The rest of the Personal artifacts were 11 buttons (five iron, and six glass or porcelain), three clasps, a cufflink, six fragments of washbasin, a pin, a watch fragment, and three leather strap fragments. The Food Debris was all bone fragments. Seventeen were from birds, including six poultry and one possible goose. One was a fishbone, and the rest were from mammals—27 cattle, two pig, two goat, one rabbit, and two rodent.

The Food-Related artifacts were refined earthenware ceramics (n=256), glass vessels (n=19), porcelain, stoneware and coarse earthenware ceramics (n=12, 14, and 2 respectively), iron cutlery (n=5) and a rolling pin. Only one sherd of refined earthenware had a maker's mark. Unfortunately it was partially illegible--"(?)ELL CHINA". The glass included a sherd of a blue stein embossed "GUTEN DINGEN..MASSIG..", "good things" and "massive" (or "bulky"). The cutlery consisted of a fork, knife, spoon, and two handles.

Stratum BI was the fill within a large looter's pit and was a very loose, very dark grayish brown silt loam. There were 4,143 artifacts from the pit; obviously none of them complete bottles. In spite of the fact that this is a disturbed context, the disturbance probably consists of the selective removal of larger intact artifacts and the destruction of the vertical contexts. There is still information to be gleaned from the pit assemblage when it is considered as part of the "lumped" midden assemblage.

Most of the BI material was unidentifiable iron (40%, n=1,677). This number may be high due to being broken up by shoveling. Bottle glass (n=736) was 18% of the assemblage, followed by Food Debris (12%, n=482), Architectural (n=325) and Personal (n=349) material (both 8%), and Food-related (n=248) being 6%. Also recovered were 693g of can fragments. The method of manufacture could be identified for 19 of the sherds. Eighteen were mold-blown and one was machine-made (post ca. 1903). The Food Debris was a peach pit, an oyster shell, and 480 bones. Fifteen of the bones were bird bones and the rest were mammal; eleven cattle, four goat, one rabbit, and three possible sheep. The Architectural material was mainly 188 nails (180 wire, eight cut) and 127 pieces of window glass, along with various items of hardware. The Personal material was largely shoe parts (n=332), and a number of other objects – 11 buttons, a molded and painted kaolin pipe bowl, two watch parts, a safety pin, and a fragment of a comb. Of the Food-Related artifacts only one sherd had a maker's mark. It was barely legible and may read "HEEL CHINA".

Stratum CI, which was an extensive stratum of compact, very dark gray silt loam mixed with coal. It was about 30cm thick and yielded 4,143 artifacts, along with 3,518g of can fragments. Most of the artifacts were made up of Food Debris (28%, n=655), Personal artifacts (17%, n=399), unidentifiable iron (13%, n=314), Bottle Glass (11%, n=268), and Architectural material (9%, n=199). Other than an eggshell fragment, all the Food Debris was bones. Ten were from birds, two from fish, 24 from cattle, one each from possible sheep, pig, rabbit, and coyote, and two from goats. The Personal artifacts were mainly shoe parts (n=385), with the remaining artifacts being four scraps of textile, seven buttons (two shell two iron, and three glass), a wooden bead, an iron buckle, and a hair clasp. The Bottle Glass (n=268) included the remains of 15 bottles for which the method of manufacture could be identified. They were all blown in mold. This indicates that CI was deposited before ca. 1920, and probably before 1904 or shortly thereafter. None of the bottle glass had diagnostic embossing. The Architectural Material consisted of 133 wire nails, six cut nails, two screws, three strips of copper alloy molding, seven pieces of roofing tin, and 46 pieces of window glass. Other artifacts were seven crown caps (post 1893), an agateware doorknob, the gasket for a Hutchinson stopper for a bottle (1879-ca.1920), and two ceramics with maker's marks. One was "HOMER LAUGHLIN" and is datable to 1877-1900 (Gates and Ormerod 1982:132). The other was "WARRANTED/ THE WHEELING POTTERY CO./ WHITE GRANITE/ MADE IN AMERICA" which is datable to 1896-1910 (Kovel and Kovel 1986:70).

Stratum DI overlay Stratum EI. DI was a pocket of black loam with gravel, coal and, clinker. What distinguished DI was the presence of a relatively large amount of textile fragments. DI was encountered in Units N498/E496-497. It may be contemporary with Stratum DII, but the contact was destroyed by a large looter pit (Stratum BI). The excavators recovered 406 artifacts from DI, predominantly Bottle Glass (25%, n=111), Food Debris (24%, n=104), Personal artifacts (19%, n=81), and Architectural material

(16%, n=70). This does not include 174g of can fragments, including one sardine can. One pharmaceutical bottle, still corked, was intact. It was blown in mold. Five sherds mended to form most of a second bottle. This bottle was a clear screw-capped bottle that had also been mold-blown. It had a partial paper label that was not legible. It was probably a liquor bottle. The method of manufacture for the other bottle fragments could not be identified. Three bases had maker's marks. Two were embossed with what is probably "IGCO" inside a diamond. This is the Illinois Glass Company (ca.1900-1916) (Toulouse 1971:264). The third mark was partial "...J. H..NZ CO. / ..1..", most probably the H. J. Heinz Company.

The Food Debris consisted of 103 bones and one seed. Most of the bone was simply identifiable as being from medium to large mammals. Eleven were from cattle and three from birds, including one chicken. The Personal artifacts were 51 shoe parts and 30 scraps of textile. Much of the textile had some sort of rubber or plastic coating.

The Architectural material was 14 pieces of window glass, 51 wire nails, 4 cut nail, and a large iron spike.

Stratum DII over overlay FI and was overlain by the looter's pit (BI). It was not possible to tie into the other strata due to the looters' pit (BI). It was identified only in Unit N498/E499 and was a very dark grayish brown clay loam and contained 62 artifacts. These were mainly unidentifiable iron fragments (53%, n=33), Food Debris (18%, n=11), and Bottle Glass (25%, n=8). The Food Debris were all mammal bones, one of which was probably from a cow. None of the bottle glass was diagnostic.

Stratum EI was a black loam mixed with gravel, coal, and clinker. It was encountered in units N498/E496-497 and was about 20cm thick and thinned out in Unit N498/E496 where it disappeared. The excavators recovered 608 artifacts from EI, and 206.1g of can fragments. The bulk of the EI assemblage was composed of iron fragments (31%, n=205), Personal artifacts (31%, n=190), Architectural artifacts (11%, n=66), Bottle Glass (9%, n=56), and Food Debris (7%, n=42). The Personal artifacts, other than two iron buttons and three fragments of textile, were all shoe parts. The Architectural (n=66) artifacts were cut and wire nails (n=4 and 47 respectively) and window glass (n=14). One sherd of bottle glass was identifiable as blown-in-mold (pre ca. 1920) and one had a crown cap finish (post 1893). Forty-two fragments of bone comprised the Food Debris group. The identifiable fragments consisted of three bird bones, one fish bone, one cow, one dog, and one possible rabbit bone. The rest of the bone were all from mammals, but not identifiable beyond that.

Stratum EII was a dense deposit of iron scraps, mainly tin cans, in units N496/E498-499 and N497/E499. The archaeologists recovered 1,344 individual artifacts from this stratum and 4.28kg of tin cans of which 13 individual ones could be identified. Unidentified iron fragments (n=479) were the largest group, accounting for 36% percent of the assemblage. Food debris (n=193) was 14% of the assemblage. Other than one fish and one bird bone, the food debris was all mammal bones. The identifiable mammal bones were three from cattle, one possible goat bone and one from a sheep or goat, one from a pig, and one from a squirrel. Personal artifacts (n=177) were 13% of the total and were mainly shoe parts (n=157). Other Personal artifacts recovered were parts of an old open-flame miner's head-lamp that hooked on to a cloth cap. Other personal artifacts were a glass button and two iron ones, an iron shoe horn, and six scraps of a red textile. Unidentifiable glass (n=165) and Architectural artifacts (n=160) were each 12% of the

stratum EII material. The architectural material was made of 135 nails (133 wire, 2 cut), a large spike, and 24 pieces of window glass. Most (n=120) of the unidentifiable glass was melted indicating that much of this material was burned before being disposed of in the midden.

The Food-related material (n=59) was composed of refined earthenware (n=34), stoneware (n=10), porcelain (n=6), and glass (n=9) sherds. Eight of the refined earthenware sherds had some sort of decoration. One piece had polychrome floral decal, three were transfer printed, one was gilded, one was hand-painted, and three were molded. The glass sherds were from tumblers and a jar. Other artifacts from this stratum included a toy ring with a red cut glass jewel, a porcelain marble, seven fragments of newspaper. Of the 13 identifiable tin cans, four were sanitary cans (post ca. 1904), one was a tobacco can (post 1892), and four with locked double-seams and flanged ends (post ca. 1894, probably hole-in-cap cans). Sixty-six bottle fragments were recovered from EII. Two of these were blown-in-mold, and so date to before the 1920s. Another sherd was from a crown cap finish and is datable to after 1891.

Stratum EIII was a thick lens of black silt loam mixed with coal and clinker encountered in units N496-497/E498-499. This stratum contained 291 artifacts. As with the strata below, this material was primarily iron fragments (28%, n=81), Personal artifacts (19%, n=56) (mainly 48 shoe parts), Food Debris (15%, n=44), bottle glass (14%, n=41), Architectural materials (11%, n=33), and Food-Related ceramics and glass (n=25). This stratum also yielded 547g of tin can fragments. None of the bottle glass, which for this period is most useful for dating, was diagnostic. Among the other artifacts were four buttons (three glass and one iron), a pencil fragment, and a watch fragment. The food debris was all bones; a bird bone, two from cattle, and possibly one from a coyote. The Architectural artifacts were nails (n=29) and window glass (n=4). Other than one cut nail, the nails were all wire ones.

Overlying Stratum EII, **Stratum EIV** was a pocket of dark brown loam mixed with ash coal and clinker. It was not detected as a separate stratum during excavation, being excavated as part of Stratum EIII.

Stratum EV was a thin (<5cm) ash layer encountered in units N496/E498-499. Strata EIII and EII, a dark burned layer and a dense concentration of tin cans, overlay it. While Stratum EV is distinct in the profile it was not detected during excavation, so no artifacts were recovered from this stratum.

Stratum FI was a thick ash layer, also found in all the excavated units, and containing 1,663 artifacts. As with Stratum FIII these were predominantly unrecognizable iron fragments (39%, n=804), probably mainly from tin cans, followed by Food Debris (21%, n=346), Architectural material (10%, n=169), Bottle glass (10%, n=170), Food-Related (6%, n=94), and Personal artifacts (3%, n=58). The Food Debris was bone (n=342) and seeds (n=4) (one peach pit). Twenty-eight of the bones were from birds, and the rest (n=314) were mammal bones. One of the bird bones may be from a Canada goose, 11 were from poultry, and the remaining were not identifiable. The mammal bones were made up of cattle (n=15), two each of pig and horse, and one each of jackrabbit and goat. The architectural material consisted of 171 nails, 61 pieces of window glass, and a brick fragment. Three of the nails were cut nails and the rest were wire. Two of the bottles were complete, and most of a third bottle was recovered. All three bottles were blown-in-mold. No sherds from machine-made bottles were identified,

suggesting a deposition date before ca. 1903, although as with most *termini ante quem* based on artifact absence this should be treated with caution. Both complete bottles were pharmaceutical bottles. One was embossed "CARLO ERBA" and "MILAN". The fragmentary bottle had a partial label. "MOUTAR.. LAFEAU.. SOULS.. FABRICAN.. BORD.."—a French mustard bottle.

The Food-related artifacts consisted of refined earthenware (n=53), porcelain (n=25), stoneware (n=9), glass (n=6), and one copper alloy lid from a salt-shaker. Ten of the sherds had transfer-printing, 12 had blue hand-painted decoration, and the rest were undecorated. Four of the refined earthenware sherds mended to form a shallow bowl with a black floral transfer print on the interior. It had a maker's mark "OXFORD IRONSTONE CHINA/ J. & G MEAKIN/HANLEY/ ENGLAND" and "8" around the British Royal arms. This mark is datable to after ca. 1890 (Kovel and Kovel 1986:11). Six of the 25 porcelain sherds had hand-painted blue decoration, one had pink hand-painting, and the rest were undecorated. The stoneware was not diagnostic. The personal items (n=58) were primarily shoe parts (n=51), along with two watch parts, and five buttons (two glass, two iron, and one synthetic one). Some of the other artifacts from this stratum were a small scrap of newspaper, two fragments of porcelain toy tea set, a complete blown-in-mold inkwell, and four fragments of slate, probably for writing lessons.

Stratum FIII, a 10-40cm thick layer of dark organic loam that was found in all the midden units. This stratum yielded 1,934 individual artifacts along with 315.5g tin can fragments. The identifiable artifacts were primarily from the Food-Debris (20%), Architectural (12%), Personal (9%), Bottle (8%), and Food-Related (5%) groups. The Food-Debris Group was, other than 10 eggshell fragments and 28 seeds (including three peach pits), all bone (n=342). Sixteen of these were from birds, including three from geese, and one was a fish bone. The remainder (n=325) were all from mammals, including 13 cattle, four goat, one rabbit, and four pig. The rest were not identifiable. The Architectural material (n=223) consisted primarily of 171 wire nails (post ca. 1890) and window glass (n=48). The Personal artifacts (n=171) were composed mainly of shoe parts (n=145), along with four leather glove fragments, seven buttons (two glass, two wood, and one each of shell, iron, and copper alloy), a buckle, 12 fragments of textile, and two watch parts. The bottle glass (n=149) was generally not diagnostic. One sherd was solarized purple, indicating a manufacture date of pre ca.1915. Two of the sherds were embossed; one "PIERCE'S..ORITE..RIPTION" and the other "MILAN.." The Food-Related items (n=103) were refined earthenwares (n=77), stonewares, (n=12), porcelain (n=8) and glass (n=6). Two of the sherds had maker's marks. One was "ROYAL PATENT..IRONSTONE..RD ALCO..ENGLAN.." and the other was a lion.

The natural **subsoil** was a brown silty clay, yielding 47 artifacts, in addition to 138g of unidentifiable iron scraps, from this stratum, mainly material pressed into the subsoil. Most of this material was composed of eggshell (n=15), bone (n=10), unidentifiable glass (n=5), and ceramics (n=4).

Summary

In conclusion the Feature 1 midden appears to have been deposited in a relatively short period, no more than the two decades from 1890 to 1910, and probably somewhat less. The wire nails in the bottom stratum (FIII) give a TPQ for the entire midden of ca. 1880. The large number of these nails compared to cut nails indicates a more likely TPQ

in the later 1890s or 1910s, when wire nails began to predominate over cut nails. One rule of thumb is that wire nails and cut nails are found in roughly equal proportions from 1890-1895; the ratio of wire to cut is 3:1 1895-1900, and increases after 1900 (Sutton and Arkush 1996:163). In stratum FIII and from the subsoil the ratio is 174:1. From the midden as a whole the ratio of wire nails to cut nails is 15:1.

Deposition probably ceased after 1904, but probably not long after. The excavators recovered sanitary can (post 1904) fragments from Strata EII and CI. Of the identifiable bottle glass (n=90), 87 were mold-blown (pre ca.1920), and three were machine-made (post 1904). Although three bottles were certainly deposited after 1904, they all came from disturbed contexts (two were from BI and one was recovered from a collapsed excavation unit wall). These may have been introduced after occupation at the site ceased, or it may be the case that machine-made bottles were very rare at the time the midden was being deposited.

Although it has been disturbed by looters, Feature 1 is a significant resource, deposited over a relatively short and well-defined period of time. Large excavations that can identify the pits looting, at least at the moment, can mitigate some of the effect of looting. A second mitigating factor is that even if the looting has destroyed the vertical context of the artifacts (and has also subtracted the intact bottles from the sample) the short occupation of the site means that information can still be recovered. Regardless of their stratigraphic position the artifacts in the midden were still deposited over a 10 year period, even though we lose much more fine-grained contexts.

Feature 2

The houses in this area were destroyed sometime around 1916 when a middle school was built here. About a year later Berwind High School was also built in this area. Although the documentary research suggested that pre-strike housing existed at this locus, there were no remaining surface features related to this earlier period to guide our excavations. The archaeologists initial intention was to begin the work by conducting a Ground Penetrating Radar survey of a gridded area measuring 30 meters in width and seventy meters in length, in hopes of identifying privy features. Due to heavy rains, however, the GPR survey was not conducted until several weeks after excavations had started and was inconclusive. However, during site clearing several slight depressions became apparent on the surface. The location of these depressions guided the placement of units in the search for privies.

The first unit excavated this field season was placed in one of these depressions (located at N1045/E1002). At a depth of 0.44 - 0.49 meters below surface the edge of Feature 2, a privy became apparent. A total of eight test units were excavated to expose the entire rectangular feature that measured approximately 2.4 meters by 2 meters (*Figure 41*). The size of the feature indicates that this was probably a double privy associated with one of the duplex houses in this area. Feature 2 was bisected and fully excavated. It was about 1.25m deep. The excavators identified a total of 22 separate stratigraphic contexts (*Figure 41, Table 4*).

| Stratum | Description |
|---------|--|
| AI | 7.5YR 3/2 dark brown silt loam with gravel, coal and clinker |
| AII | 7.5YR 2/0 black silt loam |
| AIII | 7.5YR 3/2 dark brown silt loam with charcoal |
| BI | 2.5YR 3/2 very dark grayish brown clay loam |

| | |
|-----|--|
| CI | 10YR 4/2 dark grayish brown compact silty loam with charcoal and sandstone |
| CII | 10YR 3/2 very dark grayish brown compact silty loam flecked with charcoal |
| DI | 2.5YR 3/2 very dark grayish brown sandy clay mottled with 5Y 3/2 dark olive sandy loam |
| DII | 5Y 1/2 black silty clay mottled with 5Y 3/2 dark olive sandy soil |
| EI | 10YR 3/2 very dark grayish brown loose loam with gravel, charcoal, and clinker |
| FI | 10YR 4/2 dark grayish brown loose loam with gravel, charcoal and clinker |
| FII | 10YR 3/2 very dark grayish brown loam |
| GI | 10YR 3/1 very dark grayish brown sandy loam and charcoal. Considerable artifacts |
| HI | 5YR 3/1 dark gray loose sandy clay and decayed organic material |
| II | 10YR 2/1 black charcoal |
| JI | 10YR 2/1 black charcoal |
| KI | 5YR 4/1 dark gray loose sandy clay |
| LI | 5YR 3/2 dark reddish brown sandy loam with rust and decayed organic material |
| MI | 5YR 4/1 dark gray ash |
| NI | 7.5 YR 3/3 very dark gray sandy clay—slumped subsoil |
| OI | 10YR 3/6 dark yellowish brown loose silt loam and decayed organic material |
| PI | 10YR 2/1 black silty clay |
| RI | 10YR 4/2 dark grayish brown ash and clinker |

Table 4: Universal strata and soil descriptions, Feature 2

Strata AI and AII were the final strata deposited within Feature 2. Stratum AII, a black silt loam, was deposited last. It was fill within a shallow depression cut into AI. AI was a thick (12-28cm) layer of sediment, a dark brown silt loam with gravel, coal and clinker. During excavation there was some mixing of the artifacts from the two contexts, with 205 artifacts coming from mixed proveniences, 1079 artifacts definitely recovered from AI and 158 definitely recovered from AII. The assemblage from AI was dominated by Bottle Glass (40%, n=429), Unidentifiable Glass (28%, n=307), and Unidentifiable Iron (21%, n=231). The diagnostic artifacts were three machine-made bottle glass sherds. One sherd was also mold-blown.

The AII assemblage, in contrast, was largely Unidentifiable Iron (63%, n=100) and Glass (8%, n=13), and Architectural artifacts (10%, n=16). Other than piece of solarized glass (pre ca.1917) none of the material recovered was diagnostic. The material recovered from both AI and AII (n=205) was largely Bottle (44%, n=91) and Unidentifiable Glass (31%, n=63), which suggests that this material is largely from AI. The only diagnostic artifact was a sherd of mold blown bottle glass.

Stratum AIII was a continuous stratum across the whole feature and overlay strata CI, BI, OI, and EI. AIII was a dark brown silt loam flecked with charcoal. Rather than dumping, it may be due to natural erosion and silting. There were 142 artifacts in AIII, a significant drop-off from the strata below. These were largely Unidentifiable Iron (63%, n=60) and Bottle Glass (31%, n=44), with smaller amounts of Unidentifiable Glass, Architectural and Food-related artifacts, Food Debris and some leather scraps. The only diagnostic artifacts were the bottle glass. Three of these had identifiable manufacture techniques. Two were mold blown and one was machine-made (post 1904).

Strata CI and CII. CII was deposited first, and was also cut though by **Stratum OI**, which appears to be the fill in a small pit. While these three strata could be distinguished in the section, they were excavated as a single stratum. Therefore the artifacts are lumped together. The total assemblage from these three contexts was 1,704 of individual artifacts and 12.5kg of corroded iron fragments. Other than Unidentifiable Iron objects (36%, n=616), the largest groups were Bottle Glass (19%, n=319), Unidentifiable Glass (16%, n=278), Personal artifacts (7%, n=116, mostly shoe

fragments), Food Debris (5%, n=86), and Food Related artifacts (5%, n=82). The method of manufacture could be identified for five bottles, all of which were mold-blown. CI had a thin lens of very dark grayish brown clay loam overlying it (**Stratum BI**). The only artifacts recovered from this stratum were two mammal bone fragments.

Stratum DI was a pocket of very dark grayish brown sandy clay mottled with dark olive sandy loam. It yielded 210 individual artifacts and 122g of iron scraps. Other than the unidentified iron artifacts, Bottle Glass (26%, n=19), Food Debris (12%, n=25), and Architectural material (9%, n=19) were the largest artifact groups recovered. None of these artifacts were diagnostic.

Stratum DII maybe contemporary with Stratum FI. This was a deposit of black silty clay mottled with dark olive sandy loam. It appears to have been dumped in from the north side of the feature. It contained 66 artifacts and 1056g of iron scraps. Other than the iron, the artifacts were largely Bottle Glass (n=9), Unidentifiable Glass (n=13), and Architectural artifacts (n=10). The only diagnostic artifact was a complete mold-blown inkbottle.

Stratum EI overlay FI and may be contemporary with CII. The excavation of the small OI pit destroyed the contact between EI and CII. EI was a loose very dark grayish brown loam mixed with gravel, charcoal, and clinker, and it contained 524 artifacts. Most of the artifacts were unidentifiable iron (79%, n=415). The Tool group artifacts (10%, n=50) were all fragments of a single bucket. Bottle Glass (6%, n=31) was the next largest group. Three of the bottle glass sherds were from mold-blown bottles. The rest were unidentifiable.

Strata FII and FI. FII was 4-20cm of very dark grayish brown loam. FI overlay FII and was the same but with slightly higher concentrations of coal clinker and charcoal.

While the distinction could be seen in the section it was missed in excavation, and the artifacts from the two strata were lumped. A total of 978 artifacts was recovered. Most (89%) of the artifacts were unidentifiable iron objects. The remaining artifacts were

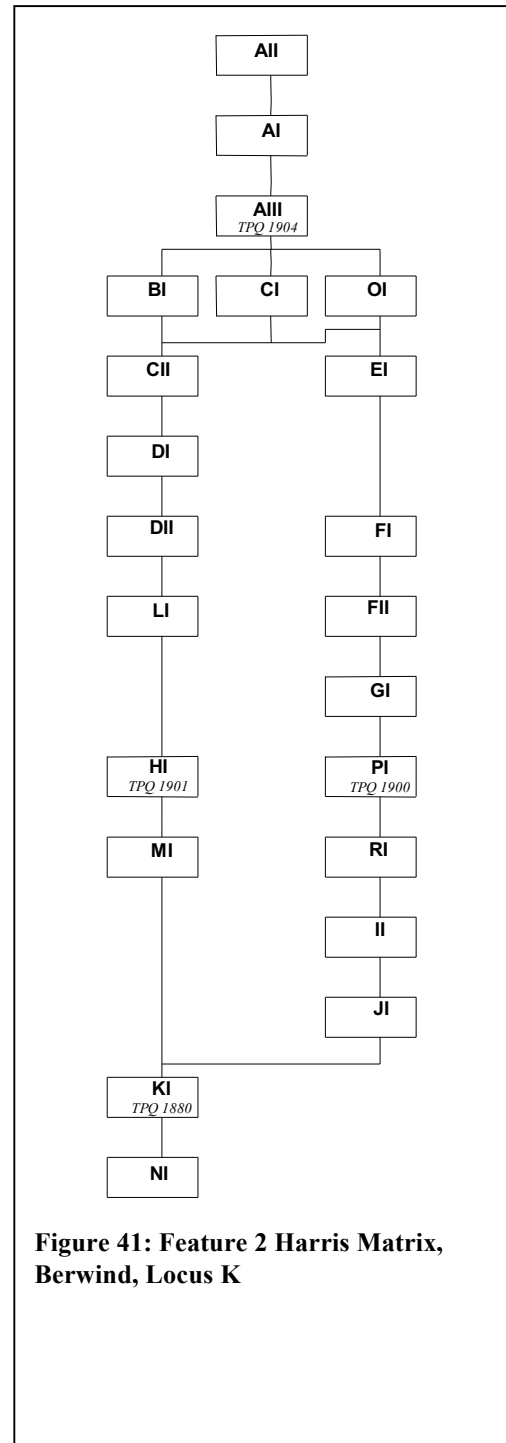


Figure 41: Feature 2 Harris Matrix, Berwind, Locus K

Architectural material (N=11), Bottle Glass (n=76), Personal artifacts (n=15), Food Debris (n=7) and Food-Related artifacts (n=2). The Architectural material included two wire nails (post ca. 1880). All the identifiable Bottle Glass was mold-blown and so was pre-1920. The Bottle Glass included three complete bottles, one of which was embossed "CROWN BOTTLING WORKS TRINIDAD, COLO."

Stratum GI was 12-28 cm of very dark grayish brown sandy loam and charcoal. It yielded a large number of artifacts, 1,299 in total, along with 352g of can fragments. Most of this assemblage (78%) was unidentifiable iron (n=1,016). The rest of the material was mainly Bottle Glass (6%, n=82), Personal items (4%, n=52), and Architectural material (4%, n=47). Six of the bottle glass was mold-blown, and the rest was unidentifiable. The Personal Items were shoe parts (n=55), part of a tortoiseshell comb and a scrap of textile. In addition there were fragments of a rubber ball and five scraps of an English/Italian newspaper. The Architectural material consisted of 46 sherds of window, a brickbat, and a porcelain doorknob.

Stratum HI was 8-12 cm of dark gray sandy clay and decayed organic material. It may be roughly contemporary with Stratum PI. It contained 114 artifacts, primarily Architectural material (33%, n=38), Bottle Glass (21%, n=24), Food Debris (18%, n=21), and 20 pieces of rubber tubing (18%), and 761 g of iron scraps. The archaeologists also found two coins; one an 1899 liberty head nickel, the other a 1901 "Barber" head dime. The manufacture technique could be established for two of the bottle sherds. Both were mold-blown (pre ca. 1920).

Strata JI and II comprised a deposit of charcoal against the south wall of the feature. The only other artifacts recovered from JI were five fragments of unidentifiable iron and two mammal bones. II, on the other hand, yielded 752 artifacts, primarily unidentifiable iron fragments (66%, n=499), Architectural material, Bottle Glass, and Food Debris (9%, n=66 each). Food-Related Artifacts (n=35) were 5%. In addition there were 2,369g of can fragments. The Architectural material was one piece of wood, 60 sherds of window glass, and five wire nails. The identifiable bottle glass was all blown in mold. Two complete bottles were recovered. One was a whiskey flask embossed with an "8" and a "B" on the base. The other was a bottle embossed "HIRSCH'S MALT WHISKEY / FOR MEDICINAL USE" with a logo consisting of "H", "S", "&", and "CO" all superimposed. The Food Debris was all bone; three, bird, one fish, six cattle, and 39 canine, including 11 domestic dog and four possible coyote. The Food-Related artifacts were of glass (n=15), refined earthenware (n=17), and porcelain (n=2). The glass artifacts were mainly pressed glass hollow wares, but included a smooth-sided beer stein and a milk glass lid liner. The refined earthenware sherds included three fragments that formed an almost complete pitcher.

Stratum KI was a dark gray sandy clay about 12cm thick, yielding 96 artifacts and 826kg of can fragments. The artifacts were made up of Food Debris (34%, n=33), Architectural artifacts (33%, n=32), Bottle Glass (19%, n=18), Food-Related (13%, n=8) and Personal artifacts (5%, n=3), one toy (a glass marble) and one wagon wheel fragment. The Food Debris (n=33) was made up of 16 bird bones, a possible goat bone, and the rest were unidentifiable mammals. The Architectural artifacts consisted of 25 wood fragments, six wire nails (post ca. 1880), and a large piece of window glass. The Bottle Glass (n=18) included three complete bottles all of which were blown in mold, a base and finish, also blown in mold, and a seal "FRATELLI BRANCA-MILANO." The

Fratelli Branca Distillery of Milan operated from 1845 on (Beverage Industry News 1999). The project also recovered two of these seals from Ludlow (CCWAP 2000). The eight Food-Related artifacts were five pieces of a single hand-painted saucer, what seems to be a handle fragment of a refined earthenware beer stein, and two fragments of pressed glass. Three shoe fragments comprised the Personal Artifacts.

Possibly contemporary with FII, **Stratum LI** was 2-10cm of dark reddish brown sandy loam with corroded iron and decayed organic material. It contained 330 artifacts, of which 62% was unidentifiable iron. The bulk of the remaining material was made up of Bottle Glass (14%, n=47), and Food Debris (12%, n=40). The identifiable bottle glass was all mold-blown. Two bottles were complete. One was embossed "DR. S. PITCHER'S CASTORIA". This was probably a worming medicine or laxative. The other was a whiskey flask. A sherd was also recovered embossed "SAMPLE BOTTLE..DR. KILMER'S / SWAMP-ROOT / KIDNEY [LIVER AND BLADDER] CURE / BINGHAMTON, N.Y." Beyond these, no diagnostic artifacts were recovered.

Strata RI and **MI** were pockets of ash and clinker. RI overlay Stratum II. It yielded ten artifacts, eight of which were Unidentifiable Iron fragments. The other two artifacts were a piece of bottle glass and a bone fragment. MI overlay KI. No artifacts were recovered from MI.

The earliest stratum deposited in Feature 2 was **Stratum NI** (*Figure 41*). This was a layer of very dark gray sandy clay sloping down from the north wall of the feature. It is interpreted as slumping from when the feature was still open. It yielded 122 artifacts and 178g of tin can pieces. The artifacts were largely Bottle Glass (32%, n=39) and Unidentifiable Glass (16%, n=20), along with Food Debris (22%, n=27) Unidentifiable Iron (8%, n=10), Food-Related (7%, n=9) and Personal artifacts (4%, n=5). The latest diagnostic artifacts were four wire nails (ca. 1880+). The bottle glass included four complete bottles. One was a soda or mineral water bottle embossed "STANDARD BOTTLING & EXT. CO. TRINIDAD, COLO". All four were mold-blown. The method of manufacture could be identified on two other sherds. They were also mold blown. Two of the bottle had Hutchinson stoppers (Lief 1965:11), which are datable from 1879-1915 (Sutton and Arkush 1996:177). The excavation also recovered a mold-blown inkbottle (Writing group). The Food Debris included a watermelon seed, a canine bone, and 14 possible rabbit bones.

Stratum PI overlay Strata II and JI. It appears to be contemporary with Stratum HI. PI was a band of black silty clay 16-20cm thick. It contained 868 artifacts, 72% of which (n=623) were unidentifiable iron fragments, and 1928g of can fragments. Architectural material (7%, n=65) and Bottle Glass (6%, n=49) were the next largest groups. The Architectural material was mainly window glass (n=58), including some large pieces, along with five wire nails and two brick fragments. The Bottle Glass included another bottle embossed "HIRSCH'S MALT WHISKEY / FOR MEDICINAL USE". This was the only diagnostic one, and was mold-blown. Among the other artifacts from this stratum was an "Indian Head" penny dated 1900.

Summary

In conclusion the dating of the Feature 2 privy deposits is similar to that of the Feature 1 midden. Trash deposition within the feature, at least from Stratum KI up, began after 1880, and probably after the 1890s. The Stratum overlying KI was HI, which

had a TPQ of 1901. This dates the bulk of the filling to after 1901. Actual trash dumping probably ceased before the deposition of AIII, which had a TPQ of 1904.

We would argue that most of the deposition took place within a short period, archaeologically speaking, probably less than five years or so. It commenced after 1901, based on the coin from Stratum HI, and ended before or shortly after 1904, when machine-made bottles began being produced. The beginning date is firm, and the latter date is more tentative, being based on negative evidence—the absence of machine-made bottles below Stratum AIII. Of the 77 identifiable bottles and bottle sherds from Feature 2, only four were produced by automatic bottle machines. These four were all from Strata AI and AIII.

Conclusion

In conclusion, Locus K of Berwind contains intact deposits dating to the period before the 1913 strike. This area shows a high degree of archaeological integrity. The midden area appears to date to the period before the strike, and the yard areas show a great deal of potential. Occupational deposition was identified in both yard area units excavated at this local. In addition, the remarkable preservation of floral and faunal material in the midden could potentially provide an important data set on diet and nutrition among miners and their families in the early 20th century.

11. AREA L

Area L is on the west side of the road, immediately south of Area H. From the foundations it appears to be a mix of domestic and larger public structures. We did not sample any artifacts from this area.

12. AREAS M-R

These designations were assigned to areas in Tollerburg, which is the adjacent town and fell outside our study area.

13. AREA S

This area lies at the northern end of Berwind. The YMCA clubhouse (Feature 400) and the school (Feature 490) were in this area along with a cluster of what appear to be domestic structures. In our initial survey and mapping of the area, we picked up 16 artifacts in this area. However none of these was diagnostic.

Area S was tested during the 2000 field season due to the architectural remains in the area, as well as the possible midden located with the area. A midden was located on the western side of Area S. However, the steep slope, approximately 70 degrees, hindered testing. Three units were placed in the yard areas of the site between the structures. Archaeologists tested the yard areas because of their probable use as activity areas. Excavators thought that material found in these areas could be associated with the possible activities in the yards. There were promising finds in the yards, but erosion and lack of any definitive pattern in the material culture meant no clear use for the yards could be determined.

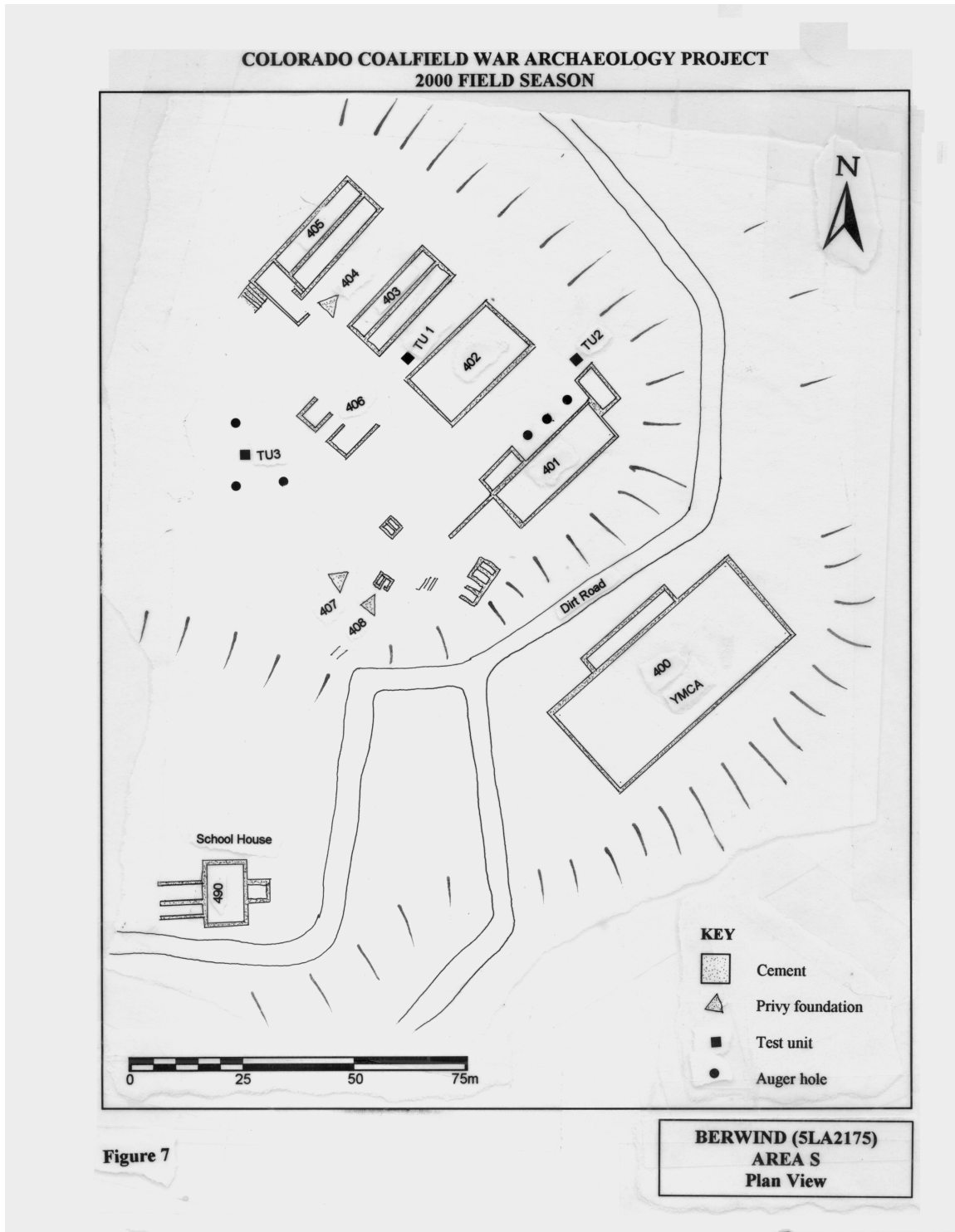


Figure 42: Berwind Area S Plan View for 2000 field season

Three test units were excavated in the yard area known as Area S (*See Figure 42*), during the 2000 field season, Test Units 1, 2, and 3. Deposits were shallow and few artifacts were recovered in any of the units. The first of these, called **Test Unit 1**, was

located between two domestic structures. It was approximately one to two meters north of Structure 402 and three to four meters south of Structure 403. The unit was situated in an area that is believed to be a yard or otherwise used for repetitive tasks. The unit was excavated in natural strata as S (surface), R (root), A, and B. The few artifacts recovered from **Strata S and R** included small pieces of glass, ceramic and metal. Near the bottom of **Strata A** the soil became higher in clay content and lighter in color. More coal and clinker were present as a lens towards the base of the level. In the northeast corner we ran across a concentration of rocks we believed to be associated with bedrock, which proved true in **Strata B**. Very few artifacts were recovered in either strata. (See *Figure 43*).

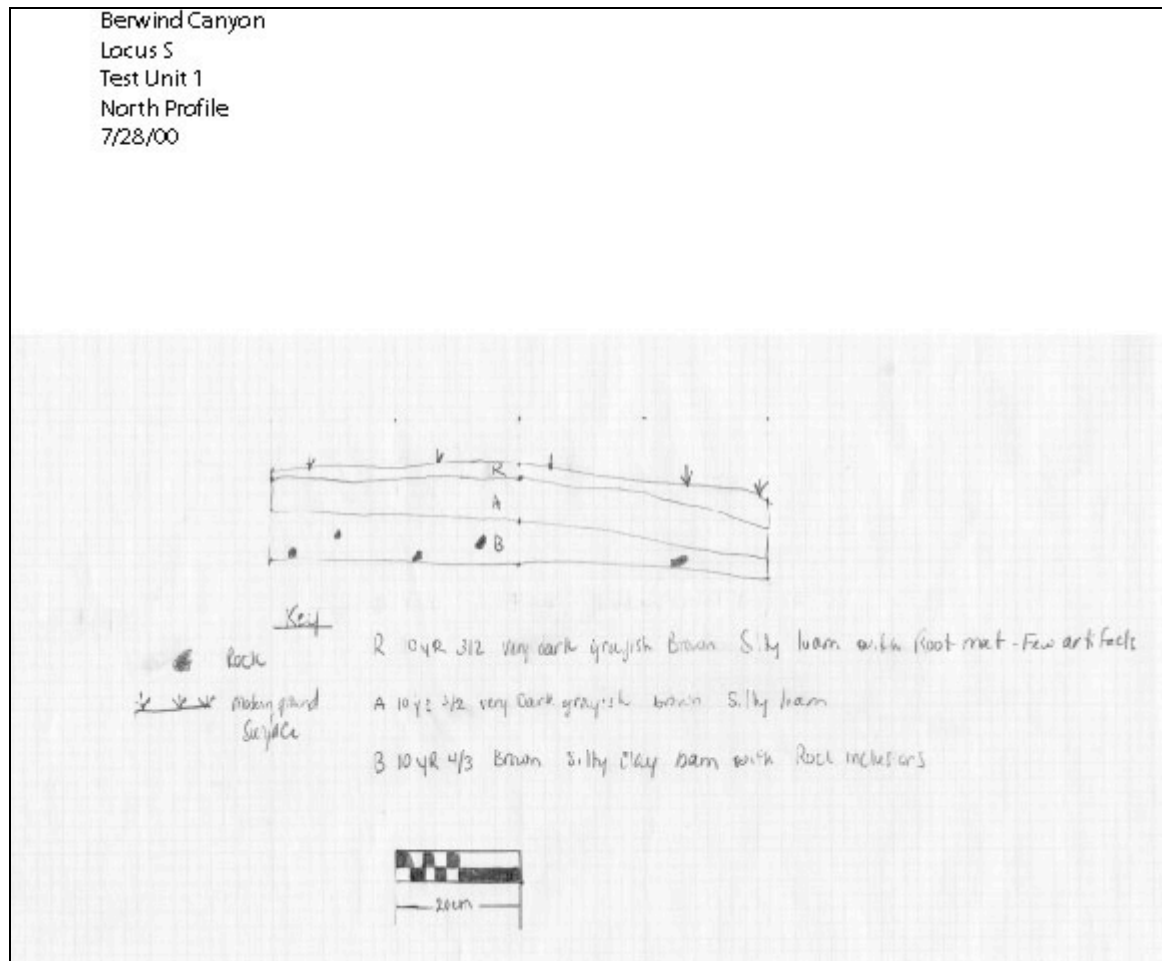


Figure 43: Area S Stratigraphic Profile for Test Unit 1, Berwind Canyon, 2000 field season

Test Unit 2 was located on a slope near the rear of Feature 401. The artifact scatter on the surface was moderate suggesting further excavation in this area. However, this scatter was not consistent with the amount of artifacts recovered during excavation. The entire unit was free of artifacts save what was recovered from surface collection. The only significant observation from Test Unit 2 was the soil. In the northern portion of the unit, the soil consisted of a yellow sand, while the southern portion was the usual

grayish brown silty loam (See *Figure 44*). Despite this difference in soil the unit yielded little information.

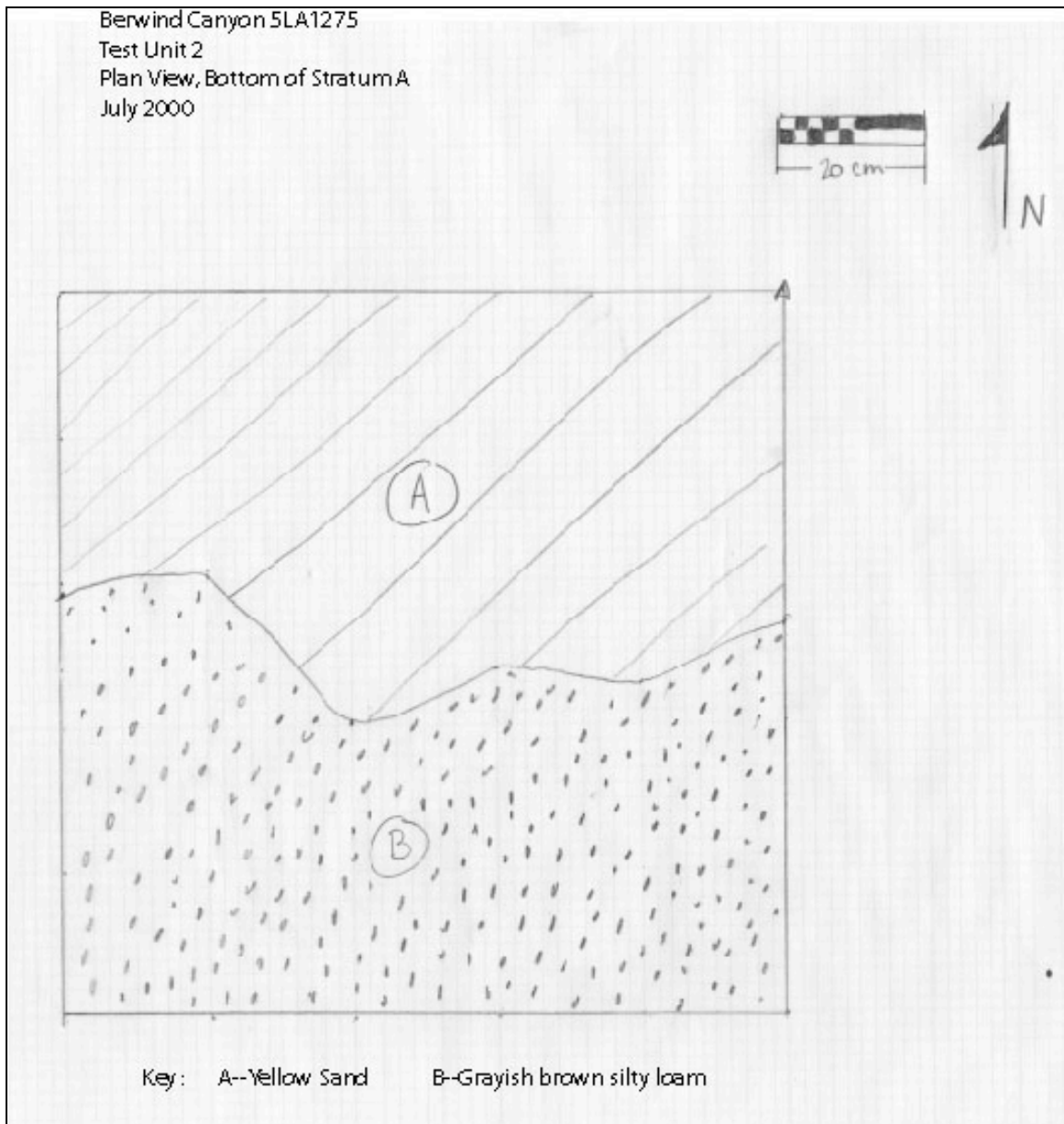


Figure 44: Area S Plan View of Test Unit 2, Berwind Canyon, 2000 field season

Test Unit 3 was located on a slope of what we interpreted as a midden. There was little to no vegetation on the surface, however there were heavy artifact, coal and clinker concentrations. Due to the lack of vegetation no root level stratum was excavated. From **Stratum S** (the surface) we recovered the usual glass, metal, and ceramics as well as lamp parts, and a drill bit. The soil of **Stratum A** was sandy loam with several artifacts. Artifacts included: glass, metal, many nails (including some wire, some cut and several screws), ceramic, a button, part of a shell, and bone. The stratum

ended at a very hard soil filled with coal and clinker and scattered with large rock hindering further excavation. **Stratum B** was largely sterile except for a few concentrations of coal and clinker. The stratum ended when the coal and clinker died out and excavators were left with only sterile soil. No artifacts were recovered from this stratum.

Overall, the excavations in Berwind Canyon Area S yielded little information as to the function of the yard area. Analysis indicates that while the site does contain deposits that yielded 20th-century artifacts, this area appears to be eroded and the cultural deposits considerably deflated. This is unsurprising considering expectations for open area use and the presence of the midden on a steep slope, which would spread out trash deposits into very thin layers over a wide area. Despite the lack of clear evidence for use in the yard areas, our excavations in the privies and middens were very successful and we believe our goals have been met by our excavations in Berwind Canyon.

14. AREA T

This area consists of a discrete cluster of domestic foundations, privies and associated outbuilding located approximately 0.7 kilometers up School Canyon road. When we first encountered these ruins we wondered why they were set apart from the rest of the community. Later, Informant A told us that this location was where African American miners and their families lived.¹² There are a total of eighteen shaped stone foundations, seven privies, a large communal oven, and five out-buildings, oriented with the landscape on a high ridge overlooking a deep canyon. The archaeological remains in this area of the town are in particularly good condition, presumably because looters or tourists have not impacted them.

The foundations are constructed of substantial chunks of local stone that were roughly shaped into squares and rectangles. The stones are held together by a fine grained mortar. The foundations are, for the most part, identical. They are rectangular, measuring approximately 8 meters in width and 10 meters in length, with an internal division running midway, lengthwise. The only significant difference between the foundations is that cement buttressing was employed on the corners of seven of the structures. The remains of fence lines that once surrounded the houses are also present. The redundancy of design, construction materials and construction techniques suggests that these houses were “company housing,” and may have been built at the same time.

Simple cement lined vaults mark the location of old privies. Once capped by wooden shacks, these privies are now only a backfilled, cement lined holes in the ground. They extend anywhere from a few centimeters to a meter above the current ground surface and are filled with soil. As will be discussed later, we placed auger test holes in two privies in Area T to ascertain if intact deposits were present.

One of the interesting features about Area T is the presence of a large, apparently communal oven (Fe 456) at the western extent of the domestic cluster. This oven is unusual as it is substantially larger than other ovens at Berwind, it is constructed primarily of local stone, and it has at least two enclosed areas (building?) associated with it (Fe 455).

¹² Interview with Informant A, 6/29/98, 7/3/98

Two trash middens were apparent on the surface. One extended down a rocky slope on the east end of the domestic cluster (Fe 484). The other was located on a plateau just north of domestic Features 471-474. We sampled 79 artifacts from the surface here during the mapping phase of the project. These include eight fragments from machine-made bottles (post ca. 1903), eight pieces of solarized glass (pre ca. 1915), and one piece of a mold blown bottle (pre ca. 1920).

In Area T we chose to excavate two units, one in a yard area and one in a midden deposit because these data sets could tell us very different things. By excavating in yard areas in the future, we will be able to reflect on the use of space around the home. Midden deposits on the other hand, are a rich source of material culture, however, all artifacts in a midden are in a disposal context, rather than a use context.

Unit 1 was located six meters north of the north-east corner of Feature 472, and was positioned in the center of a large, rich trash midden. The total depth of this unit was .50 meters and consisted of six layers, Strata A-F. Stratum A was a layer of clinker and coal in a dark gray clay matrix. This stratum contained 149 artifacts, mainly consisting of unidentifiable glass (n=47) and iron (n=17), bone (n=14), bottle glass (n=23), and refined white earthenware (n=21). Stratum C was the layer beneath. It was discontinuous and lay in depressions within Stratum B. Stratum C was a layer of coal and clinker and contained 44 artifacts. These included a toy gun, wire nails (n=5), unidentifiable glass (n=13), and bottle glass (n=4). The toy gun was a cap gun manufactured by the Kilgore Company and was embossed "INVINCIBLE." Stratum B was a hard packed gray silty loam underlying Strata C and A. It yielded 81 artifacts. Most of these were piece of iron sheeting for roofing (n=50). The remaining artifacts included animal remains (n=7), bottle sherds (n=7), and refined earthenware fragment (n=5).

Stratum D was a pocket of dark gray loam and charcoal within Stratum E. It contained 37 artifacts. Eighteen of these were fragments of unrecognizable glass. The remainder included a toy car, a shell button, and five refined white earthenware. Three of the glass sherds were solarized purple (pre ca. 1915). Stratum E was a layer of loose gray loam mixed with coal and charcoal. It contained 44 artifacts. Nineteen of these were unidentifiable glass, six were animal remains, and four were wire nails. Among the remaining artifacts were a rubber ball and a porcelain marble. Stratum F was the bottom cultural stratum, a very dark gray loam with heavy coal and charcoal inclusions. Stratum F contained 111 artifacts, mainly unidentifiable iron (n=28) and glass (n=30), bone (n=21), and ceramics (n=13). The ceramics were made up of refined white earthenware (n=10), porcelain (n=1), and stoneware (n=2). The identifiable glass consisted of bottle glass (n=2), jar fragments (n=4), mason jar lid liner sherds (n=5), and one piece of lamp chimney. Four of the glass sherds were solarized purple indicating manufacture before ca. 1915.

Unit 2 was located in the yard area of Feature 457. Excavated to a total depth of .45 meters, this unit consisted of four distinct layers; Strata A, B, C, and E. Stratum D was rodent disturbance within Stratum C. Stratum A was a layer of brown loam and rootmat. It yielded eight artifacts--window glass (n=3), cement (n=2), one piece each of bottle glass and white refined earthenware, and a chert flake. Stratum B was a compact grayish brown loam, also containing eight artifacts. Five of these were pinecone pieces, two were wire nails and one was a sherd of window glass. Stratum C was a compact

grayish brown loam. It yielded 163 artifacts. Most of this material was either construction or demolition related--nails (n=63), wood fragments (n=41), and a hammer. The other artifacts included pieces of mason jar (n=13), pine cone (n=10), refined white earthenware (n=3), and a sherd each of lamp chimney and solarized purple bottle glass. Stratum D, the rodent disturbance contained three wire nails, and one piece each of pinecone, window glass, and unidentifiable glass. Stratum D was a dark brown clay loam. It yielded four pieces of glass. Stratum D ended on the natural subsoil. The top two layers (layers A & B) appeared to be associated with the destruction of the house and had a great deal of architectural debris. Two wire nails were excavated from Layer C, clearly dating this layer to after ca. 1890. No diagnostic artifacts were excavated from layers D or E.

Area T shows potential for future archaeological research. Preliminary analysis suggests that this "district" was probably constructed either soon before, or soon after the strike, and was occupied until 1931 when the town was abandoned. Excavation of Test Unit 2 showed that the yard areas are stratified, with at least the lower .20 meters of deposit being intact use context. Excavation of Test Unit 1 revealed a rich source of material culture that appears to have been deposited in discrete periods.

15. AREA U

This is approximately .75 to 1 kilometer up Stock Canyon. It is separated from the rest of Berwind, but an informant told us that African American families lived up Stock and School Canyons. We found this cluster of domestic structures and some possible industrial structures up the road. We picked up 21 artifacts from here including fragments of aqua (n=5) and solarized purple (n=3) bottle glass indicating an occupation in the early 20th century. Three bottle fragments were identifiable as machine-made (post ca. 1903).

16. Privy testing

In addition to test units, we also conducted subsurface testing on privies in order to determine if intact deposits were present. These kinds of features tend to be rich in material culture and analysis of the "night soil" can be useful in addressing questions of health and nutrition. Using a 1 ½" geological auger we took core samples from seven privies in selected areas (Area A, Area B, Area T and Area E). The auger hole was placed in the center of the selected privies and soil was examined as it was removed approximately .20 meters at a time. Only one privy, Feature 166 in Area T, appeared to have intact deposits. Fragments of newsprint (probably Sears Catalogue), and hundreds of small seeds were extracted from a rich dark soil level approximately .80-1.10 meters from the surface. A flotation sample was taken from this level.

Oral informants indicated that in the 1920s and 1930s the privies were cleaned out each week.¹³ It is likely that when the town was closed in 1931 the company had the

¹³ Interview with Informant A 7/13/98, Interview with Informant B 7/13/98

privies cleaned out before they back filled them. This information leads us to believe that focusing a great deal of attention on excavations of the privies may be futile.

D. Conclusions

The work at Berwind concentrated on defining the limits of the site and identifying potentially significant archaeological resources within the camp that might provide information on how conditions in the camp changed as a result of the 1913-14 strike. We completed work that will pave the way for research in the future. We surveyed and mapped the entire town area, recording each visible surface feature. We discovered twenty-one geographically distinct residential/use areas. Test excavations or auger pits were conducted in seven areas (A, B, E, F, K, S, and T) of the town where we discovered possible pre-strike deposits, post-strike deposits and one intact privy. We completed oral history interviews with four informants who were able to tell us a great deal about the things we were finding and their everyday lives growing up in Berwind Canyon.