TESLA: INTERPRETING AN INVISIBLE LANDSCAPE

by

Jennifer L. Redmond

A thesis submitted to

Sonoma State University

in partial fulfillment of the requirements
for the degree of

MASTER OF ARTS

in

Cultural Resources Management

_____
Dr. Margaret Purser, Chair

_____
Dr. John Wingard

_____
Mark Walker, M.Phil.

_____
Date

AUTHORIZATION FOR REPRODUCTION OF MASTER'S THESIS

I grant permission for the reproduction of this thesis in its entirety, without further authorization from me, on the condition that the person or agency requesting reproduction absorb the cost and provide proper acknowledgment of authorship.

I grant permission for the reproduction of parts of this thesis without further authorization from me, on the condition that the person or agency requesting reproduction absorb the cost and provide proper acknowledgment of authorship.

_____
Date

_____
Signature

_____
Street Address

_____
City, State, ZIP

TESLA: INTERPRETING AN INVISIBLE LANDSCAPE

Thesis by
Jennifer L. Redmond

ABSTRACT

Purpose of the Study: The intent of this thesis is to demonstrate that industrial landscapes and other "invisible," or historically undervalued, landscapes have interpretive potential. The overall goals in this study are to contribute to the academic literature of industrial landscapes, to provide methods by which these landscapes can be interpreted to the public, and to aid California State Parks in meeting their management goals for interpretation. This thesis will be provided to California State Parks to be utilized prior to their implementation of an interpretive program at the Tesla addition to Carnegie State Vehicular Recreation Area, a California State Park.

Methods: A literature review of interpretation methods and cultural landscape studies was conducted to identify how other similar landscapes are assessed and interpreted to the public. In addition, historical research was done on the town of Tesla and the coal mines that were situated in the area, as well as on coal mining in the nineteenth and early twentieth centuries, company towns, and labor relations.

Findings: While there is ample information on industrial landscapes, there are far fewer examples on how these landscapes can be practically interpreted. This thesis identifies three potential "invisible landscapes" that can interpreted for the public by California State Parks and provides means by which these invisible landscapes may be made "visible" to the visiting public. As a site of working class history, Tesla may be distinctly valuable as a tool for Parks to reach out to communities typically underserved by Parks in California. The interpretation of Tesla's landscapes will meet Parks management goals for protecting the resources, protecting and inspiring the visitor, and promoting the agency.

Conclusions: The cultural landscape of Tesla is complex and its history may not be readily apparent on the physical landscape. However, its complicated history provides ample opportunities for Parks to reach out to a variety of constituencies, including those typically underserved by the park system. Through this collaboration, Parks will be able to meet its management goals for interpretation, while presenting a diverse history that may appeal to a variety of users.

Chair:

_____
Signature

M.A. Program: Cultural Resources Management
Sonoma State University

_____
Date

ACKNOWLEDGEMENTS

First and foremost, I would like to thank my committee members – Margie Purser, John Wingard, and Mark Walker – for their ideas, guidance, and valuable input. This thesis would not have been possible without their assistance. I would not have chosen this topic for my thesis without the help of Alicia Perez, fellow classmate, friend, and California State Parks employee, who first told me about Tesla and gave me access to all of Parks files. This thesis is also heavily indebted to historian Dan Mosier, whose extensive research into Tesla and Corral Hollow (and boundless enthusiasm for the place) made the historical context that much easier, and that much more interesting too. Thank you to my cohort, Alicia, Chris Lloyd, and Kat Kubal, and the other CRM grad students for your friendship and support. Thanks to my family and friends, too, for supporting me when I needed it, and also for providing much needed distraction.

This thesis is dedicated to the Redmonds and the McCanns who traveled overseas to work in Kennecott's copper mine in Utah, who lived and raised their children in the company towns of Bingham Canyon and Copperton, and who inspired an archaeologist a couple of generations later to research the people who created our industrial history. Thank you.

TABLE OF CONTENTS

LIST OF FIGURES

Chapter I. Introduction

The Tesla addition to Carnegie State Vehicular Recreational Area (SVRA), located in the Alameda County portion of Corral Hollow, contains large and complex industrial and domestic archaeological sites that are intimately intertwined in both time and space (Figures I and II). These sites include the potentially significant cultural remains of the San Francisco & San Joaquin Coal Mining Company's (SF & SJ Coal Co.) mine and the associated company town of Tesla. The landscape of Tesla is primarily invisible. The coal mine is underground and the bulk of the remaining cultural resources are archaeological, rendering the interpretive potential of Tesla less than obvious. Further, the stories that can be told using the extant industrial landscape are largely tales of a difficult era in American history. The intent of this thesis is to provide the historical background of the landscape and to provide guidelines for an interpretive plan California State Parks (Parks) can use to make this landscape "visible" to visitors when it is opened to the public.

The Tesla addition to Carnegie SVRA presents a unique challenge because, as an off-highway vehicle (OHV) park, the potentially significant cultural resources located within its borders are not the reason the park was created. The park was created to serve the needs of the OHV riding public. Conservation of cultural resources is still a goal of the park (State of California 2009a), but the resources and the interpretation of the resources are not primary reasons people visit. A 1993 statewide survey of OHV park users, however, indicated that they were interested in family oriented trail riding activities, including interpretative and educational opportunities (Jones & Stokes 2000:2-2) and Parks staff is interested in developing Tesla's interpretive potential (Buckingham, personal communication 2009). The interpretive plan presented in this thesis may be used as a management tool by Parks to protect the resources from errant riders and to lead to an appreciation and understanding of the cultural landscape by visitors (O'Riordan, Shadrake, and Wood 1989:180).

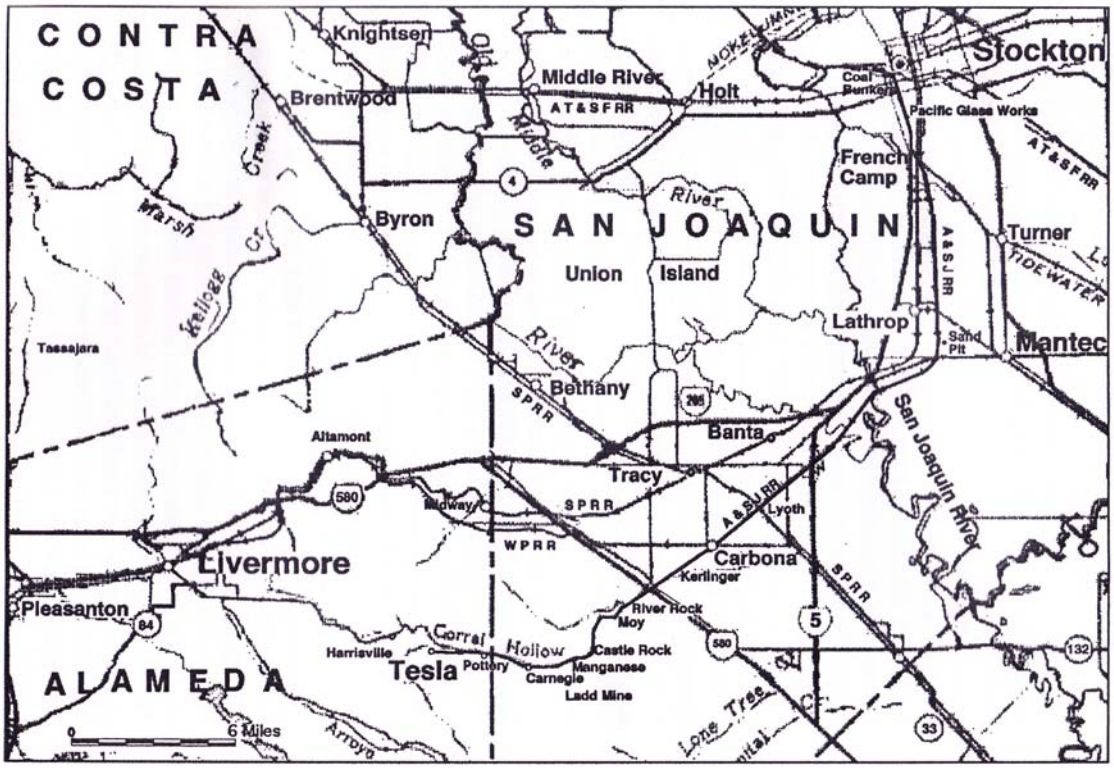

Figure I. Regional location map depicting Tesla (Mosier and Williams 2002:4)

While Corral Hollow has been inhabited for hundreds if not thousands of years, the most conspicuous and most potentially significant landscape is associated with the SF & SJ Coal Co., the analysis and interpretation of which will comprise the bulk of this thesis. Earlier and later occupations, while less apparent on the landscape, are also important and will be cursorily discussed. The various components of the SF & SJ Coal Co. mine and Tesla were working contemporaneously, but they were also layered upon older operations and settlements. These earlier mining operations were rendered invisible through the large-scale landscape alteration undertaken by the SF & SJ Coal Co. The physical presence of this company was, in turn, made more or less invisible on the landscape (e.g., buildings and structures removed, roads covered with vegetation) both by design and by neglect.

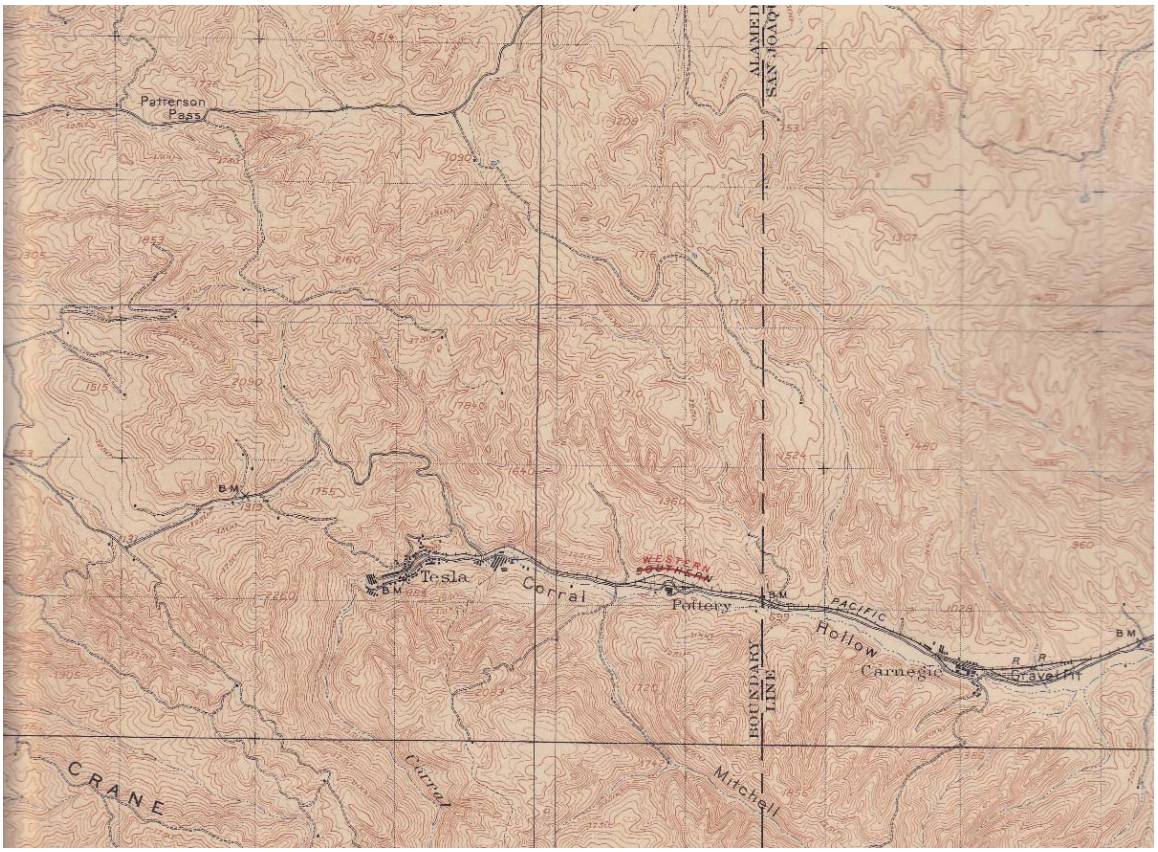

Figure II. Tesla, as depicted on the 1907 *Tesla, Calif.* 15' U.S. Geological Survey quadrangle

Research Issues

In order to properly understand and interpret the history of Tesla, research questions and themes must be drawn from several scales (local, regional, nationwide, and worldwide) and must also examine questions from a number of research domains (Hardesty 1990:44). These include the social conditions in the site, larger-scale processes about mining in general, and archaeological and documentary evidence necessary to link data to themes and questions (Hardesty 1990:43).

Although the Tesla landscape is contained in space, it is linked to nationwide and worldwide patterns of growth in industrialized capitalism and the labor movement and in order to understand Tesla, larger scale patterns need to be addressed. The coal mine was not only linked to its company town, but to the cities of Stockton and Livermore and to the owners in Oakland and San Francisco. The mine also drew on a nationwide and worldwide labor force that shifted and fluctuated rapidly.

The SF & SJ Coal Co. invested a great deal of money into their operations at Tesla, including the construction of a model company town. It has been argued that model company towns were meant to be residential settlements that contained everything necessary to meet the needs of a population, as well as to insure that the labor force was not only nearby, but healthy and content (Goddard 2002:86). Company towns were also built as a means of control. The architectural and spatial structures of the model towns were standardized, limiting personal expression of the residents. By controlling who could live in the town, what businesses could operate in the town, and even by imposing regulations on the sales of liquor and the censorship of media, the workforce could be more easily "managed" by company owners (Barnes 2002:12; Duke et al. 2005:33; Garner 1992:5; Hardesty and Little 2000:144; McGuire and Reckner 2002:50; Metheny 2007). Workers were able to negotiate their place within these communities, though, modifying standard homes and smuggling in outside food and drink (Metheny 2007).

The two decades in which this mine was in operation were among the bleakest days of coal mining in the United States. Coal mine disasters were frequent and deadly during this period, and the safety of the miners was frequently neglected in favor of increased output. Mine safety regulations had been passed in the 1890s, but there were no regulatory means to enforce the laws until 1941 (Mine Safety and Health Administration (MSHA) 2009). Great shifts in technology and labor were also taking place around the turn of the twentieth century. Electricity was introduced into the mines making some tasks more efficient, but also much more deadly (Aldrich 1995:484). At this time, skilled miners were being replaced by unskilled laborers who toiled under the supervision of college-educated men who sometimes had little underground experience (Duke et al. 2005). Violent strikes over safety, working conditions, and wages were common during this period and while none of the strikes at Tesla became violent, struggles over pay, hours, and even the quality of food did take place. Because of the enormous amounts of tension between the miners and the mine owners at this point in time, the history and landscape of Tesla cannot be explained without placing it into the context of the nation's volatile labor movement at the turn of the twentieth century.

The timing of the opening of the mine at Tesla was less than auspicious for the mine owners, which resulted in further labor volatility. The first national depression of the industrialized era took place between 1893 and 1897 (Robbins 1994:91) and Tesla entered the coal market when the prices per ton of coal were rapidly dropping (Mosier and Williams 2002:73). The owners of the mine had nonetheless invested large amounts of money into the mine and town in attempts to make it profitable in the difficult economy. They money was borrowed from a San Francisco bank that was managed by the mine's owners; this bank would collapse shortly after the turn of the century, eventually leading to the downfall of the company. The desperate influx of money in the face of serious hardships likely led the owners to feel it was in their best interests to favor output over the well being of their employees.

Despite all of these difficulties, books about Tesla (DeWelt 1963; Mosier and Williams 2002) and cultural resources studies of contemporaneous coal mining company towns (Metheny 2007) depict a high-degree of contentedness and community among the coal miners and their families in company towns. The landscape of Tesla cannot be understood without looking at the households who made up the community and the degree to which a community was fostered in these transient places. These tensions and contradictions played out on the physical landscape of Tesla, influencing how the company chose to layout their mine and town and where people were able to live. This thesis will couch the landscape of Tesla within the historical context in which it was created, and then will use the historical landscape as an instrument for interpretation.

Theoretical Approaches

Landscapes and Systems

In the colloquial sense, a "landscape" is a view of natural scenery, while a "cultural landscape" can be any geographic area that has been modified by people (Birnbaum 1994). The landscape approach, as a way of understanding the world, "denotes the interaction of people and place" (Groth 1997:1), particularly the places where a social group uses everyday space and from

which the members of the social group derive some sense of meaning. Just as cultures change through time, landscapes are far from static (Groth 1997:11; Hood 1996:121). Part of the landscape approach is to assess how different attitudes toward the land through time impact the built environment (Clark 2003:10).

While a landscape is the physical manifestation of the interaction between people and space, a "system" and the systems approach reflects the interactions between groups of people within a physical environment. These groups may be the Tesla mine owners and representatives of the larger economy, the managerial class at Tesla and the laborers, or one class of mine worker and another. The various groups of people who inhabit a landscape, in turn, influence the way a landscape is modified and perceived. The landscape cannot be understood without understanding the people who created it (Hood 1996:123) and these relationships among people are writ large upon the landscape (Walker 1997:167), including the spatial organization of the town and the limits that were imposed on where people could live.

The landscape approach is a useful method for interpreting a space that has been used by various people through time, but no longer resembles the landscape (in the colloquial sense) it was during its period of significance. The landscape approach has been incorporated into the National Register of Historic Places' evaluation protocol to manage districts, or large-scale, multi-component historic properties. Appendix A consists of a National Register evaluation of Corral Hollow as a historic district.

Interpretation

Nearly every park, museum, historic site, natural site, overlook, and downtown Main Street provides some form of interpretation for visitors. It may appear to the casual observer that interpretation consists of little more than a presentation of facts about interesting aspects of the property (Uzzell 1989:9). Although interpretation may seem like a straightforward concept, it is a nuanced management method employed by parks, museums, and other institutions to inform and

control visitors. Interpretation has been defined as the "relationship between the landscape, seeing the landscape, and experiencing the landscape" (Riley 1997:200) and it must do more than provide entertainment (Uzzell 1989:5; Ward and Wilkinson 2003). Interpretation as entertainment does little to truly inform the visitor and does not provide the visitor with any useful avenue to understand or care about the importance of a place. Interpretation done correctly, it is argued (O'Riordan, Shadrake, and Wood 1989:181; Ward and Wilkinson 2003) leads to resource conservation and more appropriate visitor behavior. Interpretation can also physically lead the visitor along guided walks and marked trails (Uzzell 1989:2).

Interpretation of Corral Hollow will be premised on the idea that it is an "invisible landscape." Many of the interpretable resources are physically invisible: archaeological sites, underground mine workings, and buildings and structures that have been removed. The resources are also conceptually invisible: "unimportant" industrial sites and sites of historically ignored working class lifeways. These sites have been considered unimportant and "ugly" in the past, unworthy of preservation and uninteresting to visitors. They may also be seen as reminders of a contentious past better left forgotten (Shackel 2001). Working class lifeways have also been historically underrepresented due to the discomfort over depicting the realities of these lifeways, although this has been increasingly rectified in recent years (Markwell et al. 2004; Shackel 2001; Stanton 2006).

Cultural Resources in the Project Area

The Tesla addition of Carnegie SVRA has been surveyed and partially recorded on at least three separate occasions as part of Parks' management process. The data from the first two surveys – Kelly and Hood and Jones & Stokes – are not on file at the California Historical Resources Information System offices for Alameda or San Joaquin counties. These survey records are kept on file at OHV Headquarters in Sacramento. Sonoma State University's Anthropological Studies Center (ASC) conducted intensive surveys of the parcel in 2008 and 2009. The following section provides an overview of the findings from these previous cultural resource studies.

Kelly and Hood Survey

A 1,000-acre portion of the Tesla addition was surveyed in 1997 by Parks archaeologist John L. Kelly and historian Joe D. Hood. The field investigation consisted of targeted surveys of springs, stream drainages, and rock outcroppings (Kelly and Hood 1997:2). Two prehistoric sites were recorded: a pecked curvilinear nucleated (PCN) petroglyph (CA-ALA-571) and a series of bedrock mortars (Kelly and Hood 1997:3). Several historical resources were also recorded: the remains of several wooden structures, refuse deposits, cattle loading chutes, and standing structures related to modern-day cattle grazing (Kelly and Hood 1997:2). No maps of the locations of these resources were provided.

Jones & Stokes Environmental Impact Report

In 2000, Jones & Stokes prepared an Environmental Impact Report (EIR) for Carnegie SVRA's General Plan Amendment. Jones & Stokes surveyed the portions of the Tesla-Alameda acquisition not previously surveyed by Kelly and Hood. Jones & Stokes identified five historic resources and two prehistoric sites (Jones & Stokes 2000:10-7). The two prehistoric sites they recorded are a rock shelter, including a hearth and an associated group of bedrock mortars and 20 pestles; and an irregularly shaped granite outcrop containing three possible mortar cupules. The previously recorded site CA-ALA-571, a PCN petroglyph, was revisited but not re-recorded (Jones & Stokes 2000:10-9).

The five historic sites Jones & Stokes recorded are: the townsite of Harrietville, comprised of 31 shallow depressions, a windmill foundation, one artifact scatter, and a pile of construction materials; the Tesla coal and clay mining operation, comprised of six tailing piles, a narrow-gauge railroad trestle, the remains of the coal washing plant, concrete and brick foundations, a dirt road, the remains of a coal chute, an unidentified structure, artifact scatters, and a mine adit; the townsite of Tesla, comprised of downtown Tesla (including dry-laid stone walls along Corral Hollow Creek and artifact scatters), Treadwell Row (recorded features were 12 structural remains, a ditch, a culvert, artifact scatters, and the remains of the Mt. Carmel Catholic Church), Jimtown (30 house or privy pits

and artifact scatters), and Frytown (artifact scatters); a timber-reinforced mine adit associated with the Tesla Mine; and the Pen Daren Mine, comprised of six large coal tailing piles and three pits (Jones & Stokes 2000:10-8-10-9).

The significance of each of these resources was evaluated in terms of their potential inclusion to the California Register of Historical Resources (CRHR) or the National Register of Historic Places (NRHP). CA-ALA-571 was determined to be potentially eligible to the CRHR under Criterion 4 (its ability to yield information important in prehistory or history). The rock shelter and bedrock mortar were also determined to be potentially eligible to the CRHR under Criterion 4, and to the NRHP under Criterion D (also its ability to yield information important in prehistory or history). The small bedrock mortar site was determined to be ineligible (Jones & Stokes 2000:10-13).

Portions of each of the four historic resources associated with Tesla and the Treadwells (the owners of the mine and town) were determined to be potentially eligible to the NRHP under Criteria A (association with events that have made a significant contribution to the broad patterns of our history) and D as contributing elements to the Corral Hollow Mining District (Jones & Stokes 2000:10-12). The transportation system was determined to be a noncontributing element (Jones & Stokes 2000:10-12). The Pen Daren Mine was determined to be potentially eligible for the purposes of the EIR, but its significance as part of the larger Livermore Mining District was not assessed (Jones & Stokes 2000:10-13).

The significant impacts and adverse effects to each of these resources by construction and other activities in the Tesla-Alameda acquisition were assessed in the EIR. Impacts included cattle grazing, trail construction, campground construction, and increased visitation to, and possible destruction of, cultural resources by visitors. Mitigation measures proposed included the monitoring of known cultural resources, data recovery of archaeological sites that would be directly impacted, and the planting of shrubbery to conceal sites (Jones & Stokes 2000:10-16).

Sonoma State University's Anthropological Studies Center

The ASC conducted the most recent cultural resources study in the Tesla addition (Newland 2008). This study was done to record extant mining portals within portions of Carnegie State Park and the Tesla acquisition. A total of 28 coal, sand, and clay mining portals were recorded over the course of their field surveys. Most of the portals have been closed off, either naturally through slumping and erosion, or by intentional backfilling or covering with bat gates (Newland 2008:13). The mine portals were recorded along with associated dirt roads or trails leading to them, nearby artifact scatters, waste rock piles, cut flats, and rock walls (Newland 2008:16). The ASC preliminarily assessed the eligibility of the mining portals to the National and California registers. The majority of the portals recorded were determined to be ineligible to the registers because their physical integrity had been compromised, or because they were associated with recent, small-scale, and insignificant mining of sand (Newland 2008:24). The ASC posits that the entirety of the mining complex – the mining portals, the towns, the industrial buildings, and the associated infrastructure – may be eligible as a historic district (Newland 2008:20-21).

The identification of Tesla as a potentially eligible historic district by two separate survey teams indicates that Tesla is suitable to be understood as a landscape. This thesis will discuss the ability of Tesla's landscape to convey its importance through interpretation to the visiting public as part of Parks' management plan.

Project Methods and Organization

Methods

Research for this project began in the fall of 2007. This research consisted of a literature review of pertinent books and articles and consultation with a number of archives. Background research was conducted on landscapes, cultural landscapes, industrial landscapes, the interpretation of these landscapes, and the federal and state guidelines directing their interpretation. Three field visits to Tesla also took place during research for this thesis.

Sporadic archaeological research had been done at the Tesla addition before this point, but a comprehensive survey and report had not been completed. An interpretative plan that could be utilized when the park was opened to the public had also been worked on in fits and starts but never completed. An interpreter was hired for Carnegie SVRA in 2009 and a preliminary visitor survey has been drafted (Appendix B). Dan Mosier, U.S. Geological Survey geologist and local historian has been researching the history of Tesla and the mines for over 30 years, and without his research and assistance, this thesis would not have been possible. Research for this thesis began by consulting with Mr. Mosier and by reading his book *History of Tesla: A California Coal Mining Town* (Mosier and Williams 2002).

OHV Headquarters in Sacramento has provided access to all of their files on Tesla, including cultural resources reports, maps, and photographs.

The 1900 U.S. Federal census was consulted for names, relationships, and occupations of the residents of Tesla. Unfortunately, much of the 1890 census was lost in a fire and the 1910 census is irrelevant because the town was essentially abandoned by that point. Therefore, comparative demographic data for the town is not available. The census does, however, provide a snapshot of the town at its peak. Many other records from the town have also been lost to disaster. The California Safe Deposit and Trust Company's building, which held many of Tesla's company documents, was destroyed in the 1906 earthquake and fire in San Francisco (Mosier, personal communication 2008).

Earle E. Williams, a local historian who worked in close collaboration with Mr. Mosier, donated his files to the Bancroft Library at the University of California, Berkeley, and research in these files revealed transcriptions of newspaper articles, interviews with former residents of Tesla, and original articles. The Livermore Historical Society was consulted for any files on Tesla, but their collection closely mirrored Mr. Williams' files at the Bancroft Library.

Several newspapers were consulted for information on Tesla, particularly information on the residents, on strikes, and on any major accidents. Interestingly, sources more distant from Tesla were more likely to contain unflattering news about the mine, while the local papers focused upon social news and notes. Newspapers consulted included the *San Francisco Chronicle*, the *Los Angeles Times*, and the *Woodland Daily Democrat*. Copies of articles from the *Livermore Herald* and the *Livermore Examiner* were consulted at the Bancroft Library.

When this thesis was begun, the possibility of a thorough cultural resources survey and resulting data set being available was far from certain. After research for this thesis was started, the ASC began surveying the Tesla addition, including the mine portals within the park boundaries, for safety concerns. Some of their data will be included here with the knowledge that the ASC's long-term project will provide even more useful data for park interpretation in the future.

Organization

The research presented in this thesis is arranged in six separate chapters. Chapter 2 presents an historical overview of Tesla, which is drawn from primary documents, local histories, and research on larger-scale historical processes. Chapter 3 discusses current ways landscape theory is used to understand landscapes. Chapter 4 discusses interpretation, interpretation in parks, and the interpretation of industrial sites. Chapter 5 utilizes the landscape approach to interpret Tesla as a series of "invisible" interrelated landscapes. Chapter 6 provides suggestions for future stewardship and outreach possibilities.

Chapter II. Historical Context

Introduction

Corral Hollow has played an important role in the development of industry and industrial landscapes in Northern California. It is the location of the first coal mine in the state of California and was home to one of the first company towns in the state. These industrial companies employed thousands of people during a tumultuous time in the history of mining and labor in the United States and their imprint can still be seen on the landscape. This chapter discusses these issues in terms of Corral Hollow's development from the time of American settlement until the present and provides the basis for the landscape analysis to follow in Chapter 5.

National Context

Coal Mining

Coal mining began in the United States in the early nineteenth century in the anthracite ("hard," high quality) coal beds of Pennsylvania. Shortly thereafter, mines were opened in the more widespread bituminous ("soft," poorer quality) coal beds found throughout the Appalachian Mountains of the East Coast. Coal was an important component of the Industrial Revolution and its rapidly increasing necessity in the steel industry led to greater investment in, and expansion of, coal mining companies in the East. Mining towns sprung up around these mines and, as the mines became more capitalized over time, the mining operations became more regularized and mechanized. The associated mining towns also grew and became more organized. While the Appalachian region still produces large amounts of coal, especially through environmentally devastating mountaintop removal methods, the bulk of coal mined in the United States today is extracted by equally environmentally unsound strip mining in the West (Freme 2009). This Western coal is primarily sub-bituminous, or crumbly, poorer quality bituminous coal.

Due to the West's more complex geology, coal is located in several disparate regions unlike the broader stretches of coal in the East. Western coal is found in the Rocky Mountains, in small

portions of the Cascades in the Pacific Northwest, and in portions of the Sierra Nevada foothills and Coast Ranges on the sides of the Central Valley in California. The expansion of coal mining in the West in the later nineteenth century was also spurred by the steel industry. San Francisco, in particular, was a hub for steel and Corral Hollow was located conveniently near the Bay Area. Early investors in Corral Hollow were interested in using the region's coal in their urban factories, though the ultimate importance of Corral Hollow coal was in the domestic market.

Eastern Investment

Coal mining and other extractive industries on the East Coast were immediately profitable because of their proximity to large population centers and the more extensive rail and water transportation systems in the East. In the vast space of the West, though, large amounts of capital had to be invested into farms or mines in order to produce enough product to make it profitable to ship to the East Coast or to booming cities, like San Francisco, on the West Coast. Corral Hollow was not immediately profitable because, despite its proximity to San Francisco, it is difficult to access and shipping coal out of the valley prior to the construction of the railroad was nearly impossible. San Francisco investors, in fact, learned that receiving shipments of coal by sea was more economical than buying from these small companies (Mosier 1983:54). Small-scale operations, like Corral Hollow's, were quickly priced out of the market, especially as early resources were depleted (Cornford 1999:93).

The process of Eastern investment leading to larger corporate mining was aided by the federal government, which had an obvious interest in controlling and maintaining land in the West. Beginning in the nineteenth century the federal government and agents of private companies who received federal funding sent out teams of surveyors to map the West. As these surveyors mapped the topography, they marked routes that would be useful for transportation and identified resources that could be capitalized upon by Eastern investors (Robbins 1994:66). A peripheral region, such as the West, is used extensively, even exploited, as the source of raw goods by larger, more powerful investors (McGuire and Reckner 2002:47). The East, in turn, amasses great profit as the source of

investment. The investors also have an interest in keeping the periphery underdeveloped to enable them to continue collecting profits (McGuire and Reckner 2002:47).

Mining

The earliest phases of prospect mining in the nineteenth century West sometimes took place even before investors from the East Coast or big cities were involved. Entrepreneurs who had a promising parcel of land would need to “prove up” these claims before they could expect any outside investment. The early prospecting would take place on a very small scale, with perhaps a few workers excavating a shallow prospect hole or scraping along a hillside to see what might lie beneath. These initial explorations may have been aided by information from earlier government surveys, as at Tesla.

Once a subsurface area was proven to be promising, larger-scale excavation would take place. Miners and other underground workers could gain access to a coal seam via an adit (a nearly level tunnel), a stope (an inclined tunnel), or a vertical shaft (Sullivan and Waters 1980:54). Once a coal seam was reached, a gangway would be driven along the coal seam, either in the coal or just below (Sullivan and Waters 1980:56). These gangways would need to be heavily timbered because of the fragility of coal or of the surrounding bedrock (Mosier and Williams 2002:23; Sullivan and Waters 1980:56).

Coal would be removed from the seams by teams of two men, typically using the room and pillar method, a type of angle and stope mining (Gertsch and Bullock 1998:159). The room and pillar method consisted of a miner removing a portion of the coal seam overhead (opening a room) while leaving a pillar of coal behind to support the rock overhead. Sometimes these pillars would be reinforced with timbers, although rock falls were still common (Sullivan and Waters 1980:57). The timbering work, along with any other task that took time away from coal extraction, was known as “dead work” and was typically unpaid. Some companies hired workers specifically to timber the mines.

Excavated coal would then be loaded into coal cars that were first pulled by people or by mules, and later powered by electricity. After coal was removed from the mine, it needed to be processed. The coal could be picked by hand, meaning people would sort out the coal from the bedrock, and it could be washed to remove the impurities so it would burn more efficiently (Mosier and Williams 2002:79; Sullivan and Waters 1980:57).

Mining was considered skilled work and, often, an inexperienced assistant would partner with an experienced miner to learn the trade. The “jack of all trades” miners of the early nineteenth century had much more control over mining methods and their judgment was paramount in their success and safety than miners working in the early twentieth century. Miners were considered highly skilled workers and some miners, like the Welsh, were sought after by employers because of their reputations (Hovis and Mouat 1996:433-434). As mining became more capitalized and mechanized, owners hired university-trained engineers to plan mining strategies. Underground supervisors were also installed in the mines to oversee the miners and to make the process more efficient for investors. Workplace behavior was closely monitored by supervisors to understand the nature of accidents that took place and, also, to quell any unionizing activities (Trettin 1990:14).

University Trained Engineers

Partially as a result of increasing rates of investment in mining, the late nineteenth and early twentieth centuries saw a new emphasis at corporate mines on university-trained engineers and superintendents (Hovis and Mouat 1996:429). Much like the usage of government geologists to identify mineral resources and assay the worth of a mine, the employment of university-trained engineers was intended to end the volatility of mining and turn it into a rational business, justifying the cost of investment (Hovis and Mouat 1996:430). Many of these university-trained engineers, had little experience underground but in the rapidly shifting mining business of the early twentieth century, their knowledge trumped on the job experience. Once an engineer began to take charge of mining methodologies, miners, who previously were relied upon for their practical knowledge, were

essentially deskilled. This deskilling led to conflicts over how to do the work, partially because miners may not have respected the engineers' knowledge. The engineers would choose where to work, how to do the work, and who worked with whom.

Health and Safety

Despite the focus on scientific progress and stability, conditions in late nineteenth and early twentieth century coal mines were deplorable (Andrews 1924; Aldrich 1995; Duke et al. 2005; Limerick 1987; Metheny 2007; Robbins 1994; Trettin 1990). Even the best mines were poorly ventilated and few contained any provisions for sanitation (Limerick 1987:100). Miners had little room to negotiate for better pay or better conditions and mine owners were under no obligations to make conditions better. Resistance by workers and the constant shortage of workers were the only reasons for the management to improve working conditions (Van Bueren 2002b:28). Workers were rarely trained how to safely use the new equipment, leading to frequent injuries and deaths. For example, around the turn of the century mine owners invested in electric cars to haul coal without training the workers in their proper use, resulting in accidental deaths (Aldrich 1995:489).

Because technological changes like the introduction of electricity in the mines happened so rapidly, the mine safety laws could scarcely keep up (Limerick 1987:108). Most laws that did require changes were summarily dismissed and there was no regulatory body to enforce the laws in the first place (Limerick 1987:111; MSHA 2009). Because industrialists were often receiving federal subsidies and providing kickbacks to politicians in return, the incentives to make mine safety laws were not there (Shackel and Palus 2006:828). The Bureau of Mines was not founded until 1910 (MSHA 2009) and the Federal Mine Safety Act, mandating annual inspections, was not enacted until 1952. Inspectors had no legal authority to enter mines until 1941 (MSHA 2009).

An awareness of the danger of the coal mines was apparent long before these regulatory changes took place. In 1924, an article entitled "Needless Hazards in the Coal Industry" noted that coal miners in the United States were killed at three times the rate of those in Britain, with an average

of 1,824 workers killed annually (Andrews 1924:24). There were no statistics available on injuries and no uniformity among the states in reporting deaths (Andrews 1924:25). Workers were killed by roof falls, collisions involving mine cars, by electrocution, and in explosions (Andrews 1924:25). Roof falls, one of those “small hazards,” would often happen because miners were not paid to do dead work, such as timbering a mine to keep it safe. Miners would work in unsafe conditions to increase their incomes because, as at Tesla, they would be paid for their output rather than by the hour or day (Aldrich 1995:487). The coal mine company’s tendency to strive for a high output, with less consideration for safety than for high dividends, was clear (Andrews 1924:25).

Although smaller accidents killed far more workers, mine explosions were more spectacular and garnered the most media coverage. These explosions happened because workers would toil in poorly ventilated mines with open-flame lamps and around exposed electric wires. Open-flame lard oil lamps were in use throughout most of the Tesla mine in 1898 (Greene 1898:523). The danger of serious explosion was a “constant” (Aldrich 1995:483). This problem became more acute as mines became deeper and therefore, gassier. The gassiness of coal mines was also a danger for suffocation.

Labor Unions

Labor unions were one of the key components of health and safety reform in the early to mid twentieth century. The first major labor union formed for miners was the United Mine Workers of America, which was organized in 1890 out of smaller labor groups. However, widespread union recognition did not take place until the New Deal (Duke et al. 2005:38) and major safety reforms did not take place until after the Ludlow, Colorado massacre in 1914. Prior to these turning points, workers had little recourse for their complaints in the mines. The eight-hour workday was not enforced in California until 1909 and worker’s compensation was not given until 1913 (Van Bueren 2002a:4).

Before the organization of miners into unions, miners often “voted with their feet” (Van Bueren 2002a:3). If they were unsatisfied with work conditions, it could be easier to move on rather than try to negotiate for a better position. Limerick called mining the classic Marxist struggle where, to owners, property came first and unions and collective bargaining were seen as an intrusion on their rights to use their property on their own terms (1987:117). If the workers did not like their pay or their safety, they could quit, and often did (Limerick 1987:117). In the late nineteenth century, fewer than 50-percent of workers stayed with their employers longer than six months (Van Bueren 2002b:34).

Company Towns

On top of underground safety concerns, coal mining company towns in the nineteenth and twentieth centuries “had a well-deserved reputation as the dirtiest and least well-planned of the Western industrial communities” (Roth 1992:179). Early mining settlements and work camps were particularly notorious for their impermanence and disregard for the land (Van Bueren 2002:1). These mining camps were created for a specific and limited purpose and, generally, the amount of money capitalists would bother investing in the venture was limited (Van Bueren 2002:2).

While these early towns were essentially company towns – towns occupied by workers of a single industry and company – they were not formal “company towns.” Company towns were devoted to a single industry, with all of the land and buildings owned and rented by the company (Roth 1992:176). They were meant to be residential settlements that had all the amenities necessary to meet the needs of the workers and to insure that the labor force was not only nearby, but content as well (Goddard 2002:86). In typical company towns, the company controlled the stores, the hospitals, the saloons, and the recreational activities (McGuire and Reckner 2002:50). The company might allow a library, as at Tesla, but what people were allowed to read would be tightly controlled (Duke et al. 2005:33). Some company towns would also regulate who could enter and leave a town, hiring guards to keep watch (McGuire and Reckner 2002:50). The company would dominate local politics, and because the town was privately owned, citywide elections were not held. The company also controlled where people lived. They were neatly organized, without regard to the terrain, with orderly

rows of houses organized upon rank and status. Owners, meanwhile, would typically live away from their mines, but the appearance of constant oversight could be implied through town layout. Although it might seem odd, at first glance, to have the management housing nearest the mines and nearest the center of town, this layout was by design. If the management was always in view, it meant the employees were always in view too.

Company towns became more sophisticated and regularized later in the nineteenth century, while retaining many of the earlier characteristics of control. Later nineteenth century company towns were the physical manifestation of the philosophical tenets of the Victorian Era: efficiency, regularity, discipline, and temperate behavior (Van Bueren 2002a:4). The new logic of the Victorian Era was characterized by specialization and predictability in the use of space, with activities specialized for one space only; the tight, efficient control of spaces and spaces being built *for* a single activity; the organization of spaces along hierarchical and linear patterns; and the hierarchical reordering and specialization of time. Time became organized according to work and leisure with the two strictly separated, whereas before, the usage of time was more fluid.

A “model” company town, as compared to a regular company-owned town, is when a company’s paternalistic intentions over its residents extended beyond the architectural design of a town to also include social programs and forms of social control (Roth 1992:176). The paternalistic nature of these company towns was characterized by social and economic programs intended to “improve employee living and working conditions, to promote company loyalty, and create a contented workforce” (Metheny 2007:18). These programs were considered sound business investments that would control worker behavior not only in the workplace, but in the home as well. Metheny suggests that this corporate paternalism was an extension of the Progressive Movement taking place simultaneously in the America’s cities in the early twentieth century (2007:19). Urban reformers at the time were trying to counteract the “evils” of city life and improve social mores by promoting more healthful living conditions, such as ventilating tenements and building playgrounds

and recreational facilities (Metheny 2007:18). The intent was also to Americanize and "civilize" people, rendering them less dangerous.

Company towns may have been "meddlesome" and oppressive, but were built with the intention to recruit and retain workers (Roth 1992:4). However, for workers who felt that the limits of the company town were too oppressive, there was the option of living elsewhere, such as a neighboring town or a tent community, if the company allowed it. Even if workers were not allowed to live elsewhere, these places might have served as a place of refuge they could escape to in their leisure time. These "satellite settlements" were not only havens for prostitutes, gamblers, and bootleggers, they were also the homes for dissidents and nonconformists, as well as for many struggling to enter the middle class (Goddard 2002:85). Company towns were built around attempts at "behavioral control", and these outside settlements were likely convenient escapes (Goddard 2002:86). Many of the western industrial towns, however, were isolated from their nearest neighbors and in these places, nearby tent communities may have served the same purpose as neighboring towns in more densely settled regions.

Site-Specific Context

Natural Setting

The physical landscape of Corral Hollow greatly influenced the cultural landscape imposed upon it by its settlers. Without the coal, sand, and clay deposits, large-scale industry would have never taken place here and, due to the harsh climate, it is unlikely many people would have settled in the area without these mineral resources either. The topography, hydrology, and vegetation are also crucial components of the natural landscape and each was modified by the area's settlers.

The area covered by this thesis is situated in Corral Hollow, an east-west trending canyon in the eastern extent of California's Coast Range. The canyon is drained by Corral Hollow Creek, a seasonal stream that flows east into the Central Valley. Corral Hollow Creek is deeply incised in the canyon, possibly indicative of intermittent, but severe, flood events (Fischenich and Morrow 2000:1).

These historical fluctuations in the stream's flow severely impacted settlements in the canyon, ultimately washing away portions of the town of Tesla. After the early twentieth century construction of the Hetch Hetchy Aqueduct upstream, the stream's vagaries were minimized (Jones & Stokes 1999:4).

Corral Hollow bisects the surrounding steep slopes of the Coast Ranges. Elevations in the project area range from 830 feet above mean sea level (feet amsl) along Corral Hollow Creek to 1765 feet amsl in the hills on the north side of Corral Hollow Canyon. The hills on the south side of the canyon reach over 2000 feet amsl and are comprised of Franciscan Assemblage rocks, a Late Cretaceous to Jurassic mélange that includes serpentine, greywacke, chert, and mafic and igneous rocks. The hills on the north side of the canyon are comprised of Pliocene and Plio-Pleistocene sediments, which unconformably overlie a much older sedimentary unit that was deposited when the Central Valley was a vast inland sea during the Late Cretaceous and Jurassic. Overlying these sedimentary deposits is a succession of middle to upper Eocene rocks including coarse-grained gravels, fine-grained sand and clay, and organic plant matter, which eventually metamorphosed and formed the seams of coal mined in Corral Hollow (Figure III; Mosier and Williams 2002:1-2; Sullivan and Waters 1980:52; Wagner et al. 1990). Over time, these sedimentary layers have been uplifted, folded, and compressed to form the Diablo Range seen today (Sullivan and Waters 1980:52-53).

The main bituminous horizons of coal found in the Eocene-age sedimentary formation are the Eureka, Livermore, Pen Daren, and Summit coal seams and an unnamed coal seam that was excavated by the California Coast Range Coal Company (Mosier 2003b:12). The latter seam was 3- to 3.5-feet thick and was located in the lowest portion of the Eocene formation. The Eureka seam is also located in the lower portion of the Eocene formation and is 12-feet thick (Mosier and Williams 2002:5). The Livermore seam is 4-feet thick and the Pen Daren seam, stratigraphically younger than the Livermore seam, is 5- to 6-feet thick (Mosier 2003a:13). The Summit coal seam, the "best coal seam in the district" and stratigraphically the youngest, is 5- to 6-feet thick (Mosier 2003a:8). The Summit seam is "shining and clean… solid and compact" (*Livermore Enterprise* [*LE*], 17 June 1876,

quoted in Mosier 2003a:10). This coal seam would later be exploited by the Tesla mines (Mosier 2003b:25).

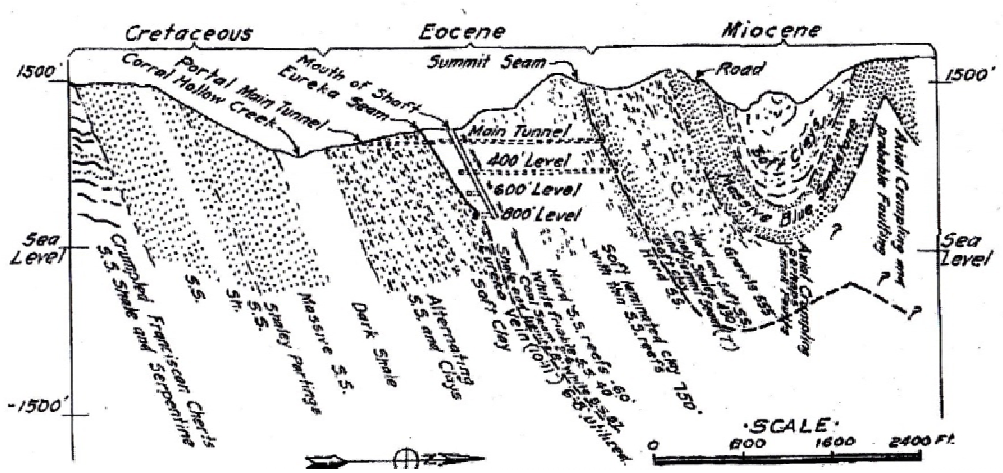

Figure III. Geology of Corral Hollow (Mosier 2003b:Figure 25)

Corral Hollow is mainly an open prairie comprised of native and non-native annual grasses (Jones & Stokes 2000:6-2). The steep hills on the south side of Corral Hollow Creek are vegetated with buckeyes and oaks. Trees in the riparian corridor along the creek include cottonwood and sycamore, as well as a few non-native trees, including eucalyptus, pepper trees, and Trees of Heaven (Jones & Stokes 2000:6-3; Mosier 2003b:7). These non-native trees are also found in the Tesla townsite where they were originally planted by the residents of the town (Mosier 2003b:7).

Native American Presence in Corral Hollow

Native Americans occupied the western Central Valley for at least the last 7,000 years (Rosenthal et al. 2007:150). During ethnographic times, the canyon was on the hinterlands of two neighboring groups – the Ohlone and the Northern Valley Yokuts – and may have only been used seasonally for ceremonial purposes and resource procurement and processing (Wallace 1978:462). Archaeological sites associated with prehistoric residents of Corral Hollow consist of a large bedrock mortar with associated pestles, a rock shelter, and two rock art sites (Jones & Stokes 2000:10-7-10-

9). While the Native American presence on the landscape is an important part of the history of the area, an extensive discussion is beyond the scope of this thesis.

Early Settlements in Corral Hollow

Corral Hollow was intermittently visited during the Spanish and Early American periods. Spanish and American explorers crossed the area, including passage along the nearby route of the Anza Trail, but the first permanent settlement in Corral Hollow was not established until late 1846 when a tent camp was set up at the mouth of the canyon, outside the present-day Carnegie SVRA boundary. The first residents of the Tesla addition were John and Margaret O'Brien, who operated a sheep ranch beginning in 1852 (Mosier 2003b:8). Corral Hollow was primarily used for ranching until railroad surveyors identified coal in the canyon in the mid nineteenth century.

The California Coast Range Coal Mining Company

Coal was first identified in Corral Hollow by surveyors who were investigating a route of the proposed San Francisco and Stockton Railroad in 1855 (Mosier and Williams 2002:5). As soon as word of the coal discovery reached San Francisco, two of the city's bankers offered to purchase the property from the railroad developer.

The first mining company to be organized in Corral Hollow was the California Coast Range Coal Mining Company, established by investors from San Francisco in 1856 (Mosier 2003b:10). The company opened their main "discovery" shaft to the east of what would become the town of Tesla (Figure IV). The California Coast Range Coal Mining Company only shipped about 60 tons of coal from the discovery shaft, which was 60- to 100-feet deep. The company also opened two adits and several prospect holes to the west of the main shaft, including the seam that would later be exploited by other mining companies. The number of workers employed by the company is unknown. This mine, while short-lived, is believed to be the first commercial coal mine to have operated in California (Mosier 2003b:11). All that remains today of their mining operations is a shallow depression at the location of the discovery shaft (Mosier 2003b:12).

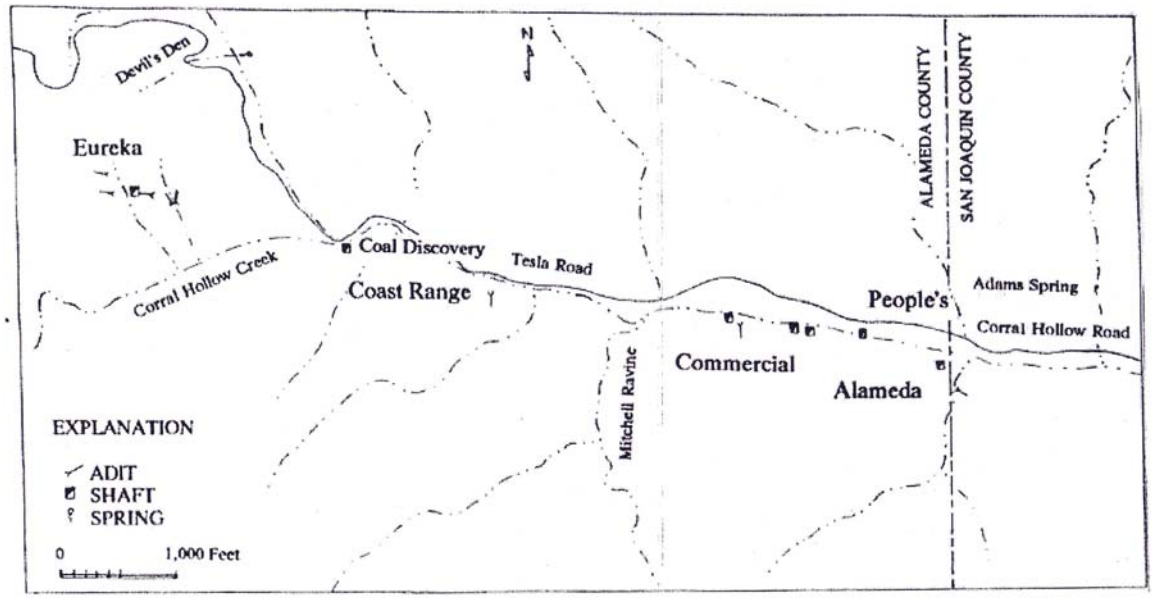

Figure IV. Map of mines in Corral Hollow (Mosier 2003b:Figure 1)

The Pacific Coal Mining Company

In 1861, the Black Diamond Coal District, located north of Corral Hollow in Contra Costa County, began selling their product in San Francisco to serve residents who had been purchasing expensive coal shipped from the Pacific Northwest, Pennsylvania, and overseas (Mosier 2003b:1). Coal investors had previously been skittish about investing in the location of the failed California Coast Range Coal Mining Company, but the success of Black Diamond spurred redevelopment of mining in Corral Hollow.

The Pacific Coal Mining Company was organized in 1861, following five years of preliminary exploration (Mosier 2003b:2). One of the primary investors in this company was John O'Brien, on whose sheep ranch the coal was originally discovered. The other two were San Francisco businessmen. This company exploited the largest coal seam in Corral Hollow, the 12-foot thick Eureka coal seam which would later be utilized by the SF & SJ Coal Co. (Figure IV; Mosier

2003b:15). Aside from the main shaft, the “O’Brien Shaft,” three drifts and an adit were also excavated. In order to open these mining portals, miners needed to be hired.

It is known that 30 men were working in the mine as early as 1857, but the later population is unknown. These men were housed in bunkhouses on the south side of Corral Hollow Creek, in the location of the later Tesla downtown (Mosier 2003b:18). Coal from the Pacific Coal Mining Company’s mine was shipped to Stockton by ten mule-team wagons to a wharf near Stockton (Mosier 2003b:17-18). In the winter this method of shipping became untenable and following severe rainfall in the winter of 1862, the company was forced into foreclosure because of its inability to transport coal (Mosier 2003b:19). Although the Pacific Coal Mining Company was in business for a short time, this larger-scale operation signaled the transition of Corral Hollow’s landscape from an agricultural to an industrial one. One of the company’s adits is visible and remains open today.

The Eureka Coal Company

The Eureka Coal Company was organized in the 1860s out of the foreclosed Pacific Coal Mining Company (Figure IV). Again, the investors were San Francisco capitalists, including the owner of the Union Iron Works who wanted to use Eureka’s coal to power his plant. The Eureka Coal Company utilized Pacific Coal’s mining portals and used their bunkhouses to house the workers, although the living conditions were “deplorable” (Mosier 1983:11; 2003b:22). Food and water were scarce for the miners and the work was extremely dangerous. At least three people were killed in the mines and an unknown number were injured (Mosier 1983:11-12). This company shipped between 400 and 800 tons of coal, also by wagon, to the wharf near Stockton. And this company, too, had financial troubles until it ultimately had to be sold. In 1890, Eureka Coal Company’s property was sold to John Treadwell, who subsequently opened the Tesla Mines using Eureka’s mining portals.

Three more coal mining companies operated prior to Tesla as part of the Corral Hollow Mining District, although none was successful for more than a few years (Figure IV). The Livermore Mining District, separated from the Corral Hollow District to the west by the Diablo Range, included at

least three mines to the north and west of Tesla. One of these mines, the Summit Mine, is within State Parks property (Mosier 2003a:2), as is part of the town of Harrisville, and later period clay and sand mines.

The Summit Coal Mining Company

The Summit Mine was first explored in 1875 by a team of three miners, and, after hitting the "best coal seam in the district," the Summit Coal Mining Company was organized (Mosier 2003a:8). Nineteen men, who dug the coal by hand and shipped it out of the mine in rail cars, were employed by the company in 1876 (Mosier 2003a:10). Like all of the other mines in the area, shipping coal in the winter was a hardship for the Summit Coal Mining Company. This was particularly unfortunate because coal was in the highest demand in the winter when people in the cities needed it to heat their homes. The Summit mine was also losing money because, although the Summit coal seam was thick and of good quality, it was highly fractured by faulting, requiring heavy timbering to keep the mine from collapsing (Mosier 2003a:11). Mine workers were typically not paid to timber mines because although it improved access and safety, it was not immediately profitable. The cost of timbering was about 12 to 13 cents per ton of coal (Mosier 2003a:11).

The mine closed due to financial problems in 1879. The mine was preparing to reopen in 1888 in response to a high demand for coal that winter, but it ultimately failed because of transportation problems (Mosier 2003a:13). All that remains of the Summit Mine are a set of railroad tracks that project into a ravine and a few pieces of iron sheets and iron pipe.

Harrisville

Harrisville was a mining camp founded by the Livermore Coal Mining Company in the Livermore Mining District north of Corral Hollow. The camp stood along Arroyo Seco Creek and extended south into Harris Canyon (Mosier 2003a:23). Harrisville followed the typical mining camp progression, in which tents later gave way to bunkhouses and cabins. Most of the residents were Welsh and English immigrants employed by the company. The town eventually grew large enough

for a school, a hotel, a store, a blacksmith's shop, a livery, and two saloons. Some of these buildings stood on what is now State property. A number of cabins lined the stage road to Tesla in a narrow ravine south of Harris Canyon. Once the SF & SJ Coal Co.'s mine opened to the south, the workers who still lived in Harrisville in the 1890s were drawn to Tesla. The town of Harrisville was referred to as the neighborhood of "Harris" in the Tesla community (Mosier 2003a:29). Archaeological survey of the site of Harrisville revealed a few small depressions and an artifact scatter, but it appears the site had mostly been destroyed by road construction.

These early mining ventures in Corral Hollow and in the Livermore Mining District were not sufficiently capitalized and quickly failed because of the lack of a reliable means of shipping coal. Although Corral Hollow is fewer than 30 miles from Stockton and 50 miles from Oakland and San Francisco, it is not easily accessible and the coal was difficult to ship without rail transport.

The first mining company to open in Corral Hollow, the California Coast Range Coal Mining Company, was a very small-scale operation, likely with few employees. Even this mine, though, was capitalized with money from San Francisco. The succeeding mines were begun with greater amounts of capital, with enough to move their workers from tents into bunkhouses and, if they were lucky, to operate for longer than a year. Early Corral Hollow mining operations invested far less money than the SF & SJ Coal Co. did when they constructed the mines and the town of Tesla. So little is known about the physical layout of the other company town on State property – Harrisville – that its appearance can only be guessed at (Mosier 2003a).

Each time one of these companies went into foreclosure, another group of investors was willing to buy the troubled assets. Many of these companies employed miners who worked at the failed mines. The next company to do so, the San Francisco & San Joaquin Coal Company (SF & SJ Coal Co.) did not prepare much differently than the other companies who attempted to turn a profit in the canyon. Like all of the other companies they enlisted investors from San Francisco and, like the later operations, they constructed company housing. However, the SF & SJ Coal Co. operated on a

much grander scale than any had before in Corral Hollow. Like any extractive business, the pursuit of coal mining required greater and greater investments of capital over time as early resources were tapped out (Cornford 1999:93).

The San Francisco & San Joaquin Coal Company

Unless otherwise noted, the descriptions of Tesla have been drawn from Dan Mosier and Earle Williams' *History of Tesla: A California Coal Mining Town* (2002).

The Tesla coal mines began to take shape in 1890 when John Treadwell, the owner of a lucrative gold mine in Alaska, began buying up property throughout Corral Hollow and purchased the mineral rights from previous mining claims in the canyon. Treadwell's initial investment in the venture was over $800,000 (Greene 1898:521) and, by 1897, Treadwell had spent nearly $2 million on the mine and town. Treadwell's confidence likely stemmed from a report from the state geologist, W.A. Goodyear, who had surveyed the property the previous year and reported that the coal seams likely contained millions of tons of coal and, assuming proper development, would be very valuable (Goodyear 1890:93).

While Goodyear was cautiously optimistic about the potential profitability of mines in Corral Hollow, Treadwell had great confidence in the power of science to solve any problem. Investors would be willing to expend large amounts of money if they believed the return would be more than proportional and, with extractive industries in particular, the attitude was to get in, get rich, and get out (Limerick 1987:100). Treadwell did not leave behind any written records so his attitude toward the longevity of Tesla is unknown, but because the amount of money invested into a mine correlated with the expected productivity (Van Bueren 2002a:2), Treadwell clearly had great expectations for Tesla.

Treadwell was apparently also thoroughly versed in the problems that beset his predecessors. He fought hard for (and invested heavily in) a railroad that would ship Tesla's coal out of the canyon. He also arranged for storage bunkers to be built in Stockton to hold the coal and,

instead of focusing solely on coal, he diversified his holdings early into sand, clay, and briquette production. Treadwell also followed Goodyear's advice about where to explore a new, less faulted, reach of the coal beds (Goodyear 1890:93). By the turn of the twentieth century, mid-level businessmen such as Treadwell had to turn to scientific help to compete with larger corporations (Mernitz 1990:87). Capitalists with no real ties to the land, but a decided interest in turning a profit on their investments, would rely on scientific information to ensure they were not making a poor decision (Smith 1990:14). Treadwell was also likely convinced of the profitability of Corral Hollow because coal shortages were common in California and, without a local producer, there was a niche to fill in the state (Mosier 2003b:3).

Shortly after Treadwell purchased property in Corral Hollow, he hired men from the defunct Eureka and Harris mines and the neighboring community to begin excavating two of the mine's main shafts: the No. 2 and No. 3 tunnels. If the findings from these early excavations did not "prove up" the claim, it is unlikely Treadwell would have been able to draw future investors. These early years of the Treadwell operation were marred by accidents and strikes. In their first year, the miners went on strike over the quality of food in the boarding house. John Treadwell had "little patience" for the strike and fired all of the workers (Mosier and Williams 2002:22). Work resumed a week later with a crew of men hired from an Amador County mine.

In 1895, after the two main shafts were completed, John Treadwell turned over mine management to his brother, James, so he could focus on the railroad to the Central Valley. James swiftly incorporated the San Francisco & San Joaquin Coal Company (SF & SJ Coal Co.) with financiers from San Francisco and Oakland ensconced on the board of directors. John incorporated the Alameda and San Joaquin Railroad Company shortly thereafter, with some of the same Bay Area capitalists. The loan for the railroad was secured from the California Safe Deposit and Trust Company in San Francisco, again, who had some of the same men on their board. The bank director was, in fact, James Treadwell. This close-knit relationship between the bank and the Treadwells' operations would eventually play a major role in the collapse of Tesla.

The next two years were spent expanding the underground workings and constructing the railroad to Stockton (Figure V). By 1897, a telegraph line was installed, the mining outbuildings, such as the boiler room and the engine house, were finished, and the bunkers for storing coal in Stockton were complete. The SF & SJ Coal Co. sent its first shipment of coal to Stockton in March of 1897. Although the company believed the coal was clean enough to burn without being processed, the *Overland Monthly* noted that "it is one of the misfortunes of the Tesla coal today that shipment was begun before it should have been, and the quality of the first lots marketed was so far from satisfactory that the name was heavily handicapped" (Greene 1898:521). The company soon realized its mistake and construction for the coal washing plant was begun in September of that same year (Mosier and Williams 2002:79). Tesla was entering a very competitive market and shipping substandard coal was a serious mistake. The market was much tighter in 1897 than it was in 1890 when Treadwell bought out the Eureka mines. When Tesla coal entered the market, it was priced at $5.50 per ton. In response to Tesla's opening, another company mining coal in Amador County dropped their prices to $3.50 per ton, severely undercutting Tesla coal prices (Mosier and Williams 2002:73).

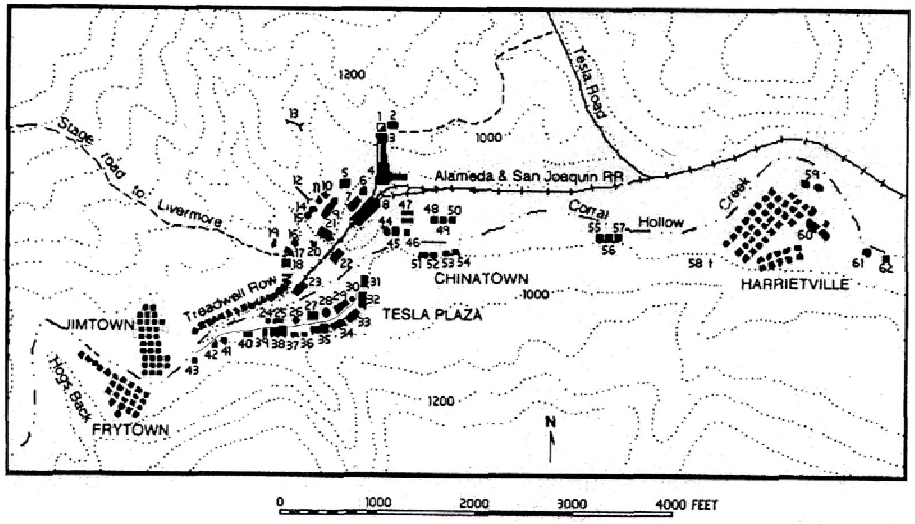

Figure V. Map of Tesla town and mines (Mosier and Williams 2002:171)

Once the mine entered into production mode (Figure VI), a new superintendent was quickly hired to boost output. This new superintendent, Frederick Horswill, ordered the miners to change their mining methods, shifting to mining directly in the coal rather than the surrounding rock. Horswill, a 30-year veteran, believed this method would remove any dead work by digging directly in the soft coal (Mosier and Williams 2002:192). A team of two miners extracting coal this way would typically dig small square openings in the coal at regular intervals along a gangway. The openings would then be driven upward into the coal and coal would be removed from the walls of the opening, creating a "room" (Sullivan and Waters 1980:57). The danger of falling rock was a constant, so pillars of coal were left standing to support the overlying rock (Mosier and Williams 2002:194).

Superintendent Horswill resigned within a year, and was replaced with a new superintendent, Richard Henry Norton, who had once been the state inspector for coal mines in Washington. Norton, too, was hired to increase the output of coal. In order to do so, he allowed contract miners to be paid by the cubic yard of coal removed (Mosier and Williams 2002:193). This encouraged the miners to work as rapidly as possible, typically at the expense of safety.

Despite Norton's background as an inspector, 1898 was a particularly dangerous year for Tesla miners, with several fires and explosions underground. A trolley system was installed that March and, within a month, a miner was killed while riding a loaded car (*Los Angeles Times [LAT]*, 25 March 1898). The first explosion of the year took place in April. Afterward, it was reported that "a number of miners have given up their places and vow they will not return to work" (*Woodland Daily Democrat [WDD]*, 1 April1898). Newspapers also made a point of assigning blame for the accidents on the miners, not on the inherently unsafe conditions underground (*Placerville Mountain Democrat [PMD]*, 11 June 1898; *San Francisco Chronicle [SFC]*, 30 September 1898). This was a common practice, even into the twentieth century (Trettin 1990:2-3). Miners who were killed were consistently considered negligent (Duke et al. 2005:33). By the time the third gas explosion of the year took place, the managers tried to keep news of the accident from leaking out, but it was difficult to hide the deaths from the news (Mosier and Williams 2002:181).

In 1898, the same year that a large number of serious accidents took place, the company made the decision to lay off miners and laborers and replace them with more experienced coal miners. However, among those laid off were timbermen because the management wanted to lower the price of timbering the mine by having the contract miners do their own dead work (Aldrich 1995:487). This lack of timbering is known to have killed at least one man (*SFC*, 27 July 1899). The contract miners went on strike that same year for higher pay, which they received at the expense of other employees' pay (Mosier and Williams 2002:178). Later in that year, a shift boss struck an employee with a pick for refusing to obey orders. The miners rose up and threatened to kill the shift boss; the boss was later arrested (Mosier and Williams 2002:141).

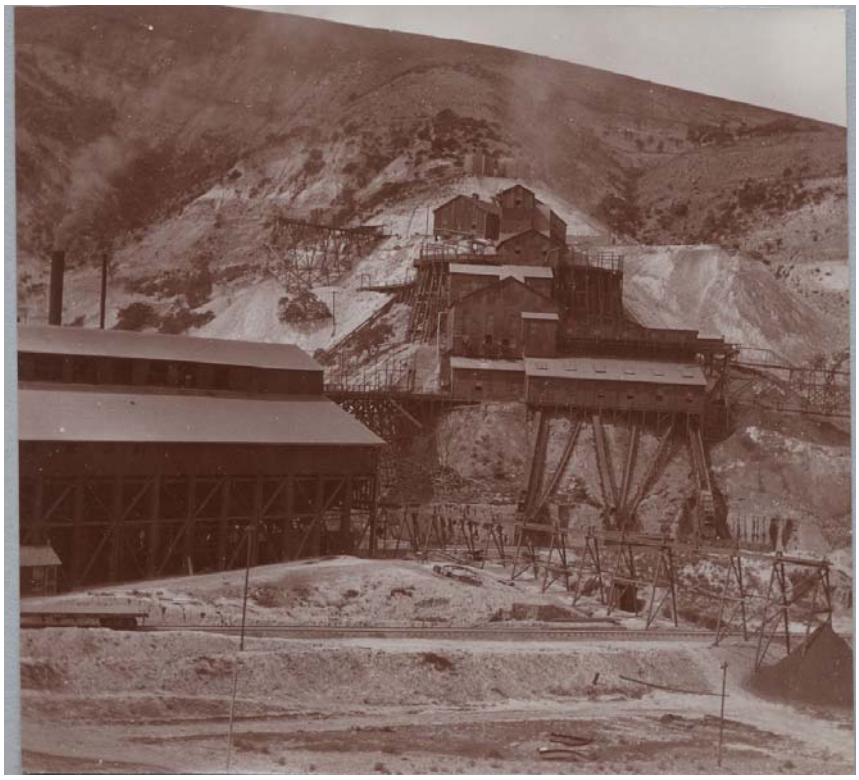

Figure VI. Photograph of the Tesla Mines (Oliver Family Collection, Bancroft Library, University of California, Berkeley)

Mine Safety

The first underground gas explosion to take a life in the Tesla mines happened in 1895, when a lamp caused a gas tank for a hoisting engine to explode and fill the mine with gas and flames (Mosier and Williams 2002:181). Fifteen to twenty men were also injured (*LAT*, 21 November 1895). Frequently, workers were blamed for any accidents (Limerick 1987:108), and this appears to be true for Tesla as well. In at least two instances, the owners of the mine and railroad were sued for negligence leading to severe injury. In both cases, the cases were tossed and the laborers were found to be at fault (*LAT*, 21 December 1897; 9 July 1901). Small accidents were regarded as a necessary hazard of the coal miner's life (Aldrich 1995:487).

Treadwell was notoriously unwilling to allow inspectors into his mines. When an inspector from the State Mining Bureau visited Tesla in 1895 and announced he was there to inspect the mines, Treadwell responded, "You're going to do nothing of the kind" (*Stockton Daily Independent [SDI]*, 7 June 1895). The next time the inspector visited the mines Treadwell was away, but the management did not allow him to enter because they were under strict instruction by Treadwell not to let anyone in without his permission.

The correspondent for *Overland Monthly* who visited Tesla in 1898 provided a snapshot for the public that was more palatable to the management:

> The night shift gathers in line at sunset to be given each a tin pail with a hearty luncheon to be taken underground with them. The day shift comes out at noon for dinner. The men look hearty and well, - giants for muscle some of them, as they show when at work in the mine, most of them stripped to the waist. The work is not unhealthful… [the doctor] says that almost all his cases are surgical, slight bruises and accidents. But two lives have been lost in all the work so far done, one by a piece of coal's falling down a shaft and striking a miner at the foot, and one by a skip driver's falling down the dump. The coal dust which fills the air at the bunkers and in the breasts is not injurious to the lungs; for it is not chemically irritating and is so fine as not to be mechanically troublesome [Greene 1898:523].

Labor History

The strike of 1898 was not the only one to take place at Tesla. Strikes also occurred in 1890, 1899, and 1900, and it is possible other unreported incidents took place because the SF & SJ Coal Co., like any company, was reluctant to allow negative press. The miners went on strike over food and wages and although they were not unionized, the obtained the occasional victory. Contract miners, for example, received higher pay following the 1898 strike (Mosier and Williams 2002:178). Despite the lack of union representation, workers at Tesla had Sunday as a day of rest. The days on the job, however, were long; the men worked in two 12-hour shifts, alternating from the day to the night shift every fifteen days (Greene 1898:523).

In December 1899, two hundred miners went on strike because of a dispute over a reduction of 25 cents per cubic yard in wages (*LAT*, 9 December 1899). The result of the strike is unknown. Another strike took place in September of 1900, under superintendent James Treadwell's watch. Men from Illinois led the strike because they were expecting higher wages than they were paid. These men telegraphed home to warn miners traveling west not to bother (Mosier and Williams 2002:178).

When a correspondent from *Overland Monthly* visited in 1898, he traveled into the mine and visited with miners accompanied by the president of the company. "[The president, Bartnett] stopped each time we came across a group of men in breast or gangway to ask them how they were being treated, or what was needed to make their work effective. Their replies were in the main cheery and satisfactory. Here and there a slight grievance as to the serving of their food, or something else, was listened to with attention and redress promised where possible" (Greene 1898:525). This article was surely written to present a good face to the company and, it is likely the workers would not feel free to air their grievances to a reporter in front of the management.

Strikes were not the only means workers had to negotiate their relationship with the management, although they were the most drastic result of the "intrinsic" tension and conflict in the

industrial workplace. Other tactics included theft, arson, sabotage, absenteeism, tardiness, and transience (Metheny 2007:15). Some of these actions are visible historically or archaeologically; some are not. In September of 1899, two suspicious fires occurred on Treadwell Row, the row of houses belonging to superintendents and mine owners. Both Treadwell's house and Norton's house were destroyed (Mosier and Williams 2002:96, 193). These fires may have been accidental, but their occurrence in such close temporal proximity and only on Treadwell Row suggests they were intentionally set. In response, Treadwell built a grander, more imposing house, perhaps sending a not-so-subtle message about who was in charge.

Mining management at Tesla would take advantage of this transience, luring disgruntled workers from elsewhere to work at their mine (Mosier and Williams 2002:175). The management would also travel great distances to secure new workers. In mid-1899, superintendent Norton traveled to Pennsylvania where he "secured a carload of experienced coal miners" (*SFC*, 20 June 1899).

Resistance in industrial workplaces cannot be reduced to the simple duality of workers versus the management (Van Bueren 2002b:29). There was also competition among the different ranks of workers. The fires on Treadwell Row suggest that tensions in the workplace spilled over into the community. Conflicts between the miners also appear to have affected life in Tesla. On October 5, 1900, a house in Darktown was destroyed by fire and, later in the month, a racially motivated altercation between new African American miners from the South and unidentified white miners took place. The men fought with clubs and other weapons, although the fighting stopped before anyone was seriously hurt. The men were all fired (Mosier and Williams 2002:142-143). Tesla, like many other mines, segregated workers in the workplace by race and ethnicity. African American workers, for example, could not be supervisors, and Japanese men could only supervise one another (U.S. Federal Census 1900). Differences in pay and discriminatory mining practices were also common (Van Bueren 2002b:29). There are no documented explanations for the antagonism between the black and white miners at Tesla in 1900 but it may have stemmed from anger over unequal pay or

treatment of workers or due to prevalent racist feelings. Conditions in Darktown – the portion of town African Americans where forced to live – appear to have been much less sanitary than elsewhere in Tesla.

In mid-1900, a typhoid fever outbreak hit the camp, which was attributed to dirty washwater. At the end of that same year, a smallpox outbreak occurred in the segregated portion of town, Darktown. All of the residents of Darktown were quarantined under armed guard. The men were unable to work and quickly became destitute, without "even food necessary to keep them from starvation" (*LAT*, 10 December 1900). When the quarantine was lifted in February, Darktown was abandoned.

Living in a Company Town

With all of these hazards, tensions, and lack of rights, why would a worker, or a worker and his family, choose to move to Tesla? Although life in western work camps and company towns was defined by work, home life and after work activities were far from insignificant (Van Bueren 2002b:28). While a miner's ability to influence change was difficult or dangerous in the workplace, he could make small changes to living conditions for himself and his family, even in the context of a restrictive company town like Tesla (Metheny 2007:232). People could plant gardens outside of company-supplied housing, they could make corporate activities, like the company baseball team, their own, and they could even enact change in the town, like insisting upon the construction of a saloon against the wishes of teetotaling mine owner John Treadwell (Mosier and Williams 2002:115).

Tesla started out as a collection of tents and a few bunkhouses left by prior operations in Corral Hollow, but by the year after the Tesla mines went into production, the town began to resemble an organized company town more so than a mining camp (Figure VII). Nearly $2 million was spent on the mine and town by 1897. If the mine's facilities were well built, this would, in turn, reflect favorably on the company and its owners. The company also built a library, and a hospital and a variety of businesses were opened on the plaza under contract by the company. By the end of 1897,

three new bunkhouses were completed, and cabins and cottages were taking the place of “a sea of tents” (*PMD*, 9 November 1897).

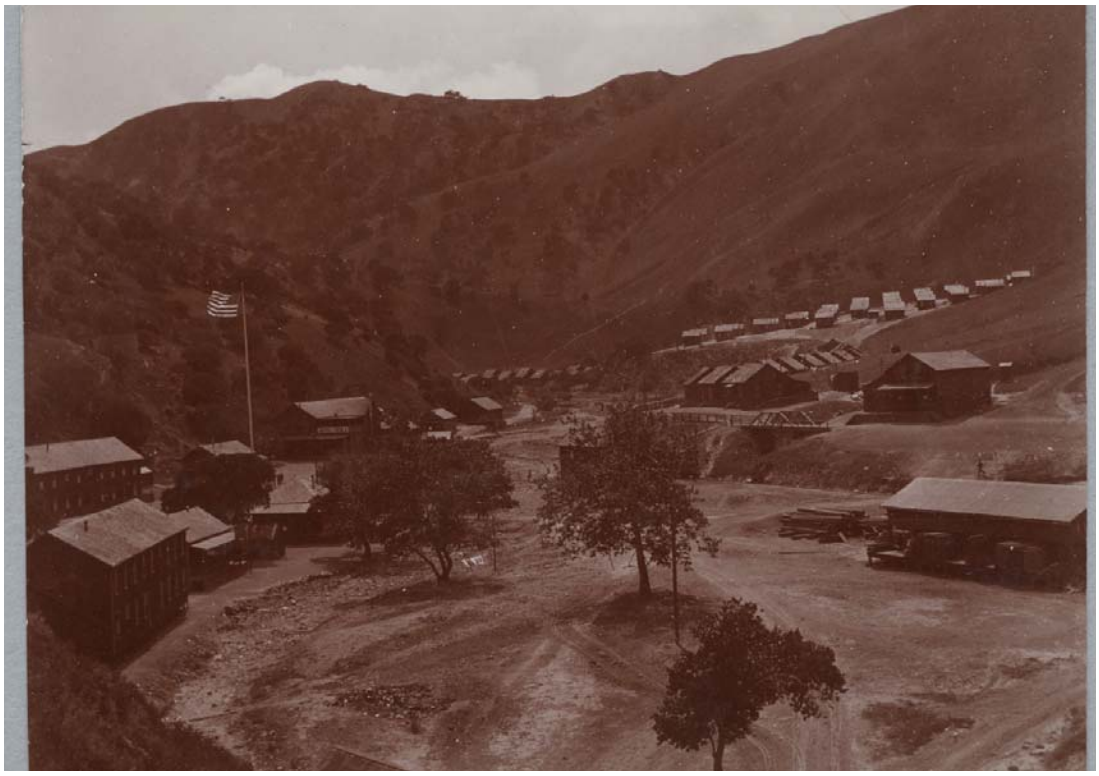

Figure VII. Photograph of the town of Tesla (Oliver Family Collection, Bancroft Library, University of California, Berkeley)

Company Housing in the Company Town

By mid-1898, 500 men were on the payroll for the SF & SJ Coal Co. (*PMD*, 29 March 1898) and 700 people were residing in the town. They were housed in 60 buildings, including 27 cottages, a hotel, and five bunkhouses (Greene 1898:522). Although an enormous amount of money was invested in the company town, the buildings were not insured. In the summer of 1898, a number of houses were burned down, and “the loss will fall heavily on the miners and the company, as there was no insurance on any of the property” (*LAT*, 14 August 1898). By the end of the year, nearly all of the buildings that would comprise the town had been built, including the plaza and the residential neighborhoods of Jimtown, Frytown, Treadwell Row, and, assumedly, Darktown/Chinatown.

The residential and commercial portions of Tesla were clustered to the southwest and southeast of the mine. The town was organized into a downtown and five official neighborhoods. Tesla was highly structured, with land uses segregated and people separated into neighborhoods according to job and ethnicity. The majority of stores were in the downtown, aside from the company store, which was located in Treadwell Row on Bartnett Avenue. The downtown will be discussed first, followed by each of the neighborhoods (Figure V).

The downtown, or Tesla Plaza, was located on a terrace on the south side of Corral Hollow Creek. The plaza was reached from the mine and most of the remainder of Tesla by a footbridge that traversed the creek at the end of the stage road. Structures on the plaza included six bunkhouses for the single men, a hotel, a saloon, a dance hall, a butcher shop, a bakery, the library, a barbershop, and the bandstand. Other small shops were located on the path, known as “Wall Street,” between Tesla Plaza and the neighborhood of Frytown, to the west of the plaza (Mosier and Williams 2002:98).

Frytown was also located on the terrace on the south side of Corral Hollow Creek. Residents of Frytown were primarily Euro-American, African American, or European and were employed in a variety of skilled and non-skilled underground positions (Mosier and Williams 2002:98). The neighborhood was made up of 25 individual homes constructed in 1898. The homes were built in five close rows separated by very narrow streets. A row of houses was also built fronting Corral Hollow Creek. There were several communal privies located behind the rows of houses. Frytown was protected from the strong winds that blow through the canyon, but as it a result, it would also get particularly hot on warm days. Directly behind Frytown is a steep hillslope that was known by residents as the Hog’s Back (Mosier and Williams 2002:98).

Jimtown was a residential neighborhood located on the north side of Corral Hollow Creek, on a cliff overlooking Frytown. The residents of Jimtown were Euro-American and European and were

employed in skilled, non-skilled, and managerial positions at the mine (Mosier and Williams 2002:97). Jimtown was made up of 32 individual homes, also constructed in 1898 (Mosier and Williams 2002:98). These houses were constructed in three long and narrow rows from the cliff to the edge of the hills to the north. The more prestigious homes, located higher up the hill, were said to be part of Nob Hill. A water tower was located on the hill, providing water to the neighborhood below. There were communal privies located behind the rows of houses. Jimtown was exposed to sun and wind, with little vegetation or tree cover.

Treadwell Row was located to the east of Jimtown, along the main road called Bartnett Avenue. Treadwell Row was made up of 17 houses constructed for the mine management, who were Euro-American and Canadian. These houses, larger than those located in any of the other neighborhoods, were built in 1897 (Mosier and Williams 2002:93). The building pads for some of these cottages were cut into the hillside and in some cases the ground was shored up with rock walls. The privies were directly behind the houses on the hill. Further up the hill, behind the privies, were small dwellings that likely housed the servants for Treadwell Row's residents. These dwellings are known from photographs and one personal reminiscence (Meyners 1975a). While no formal written documentation of these structures exist, it is known that the Treadwells had Chinese servants and it can be supposed that these small dwellings housed the servants. The company store, the hospital, the mine office, and the post office were located at the very end of Treadwell Row, where Bartnett Avenue intersected the stage road to Livermore.

On the south side of Corral Hollow Creek, across from the main mine buildings and against the hillside, was the Asian American and African American neighborhood. This neighborhood was known as Chinatown when Chinese and Japanese residents lived here, and Darktown when it was inhabited by African American workers. The African American residents of Darktown, largely from the South, were employed as miners, laborers, and drivers (Mosier and Williams 2002:100). The Chinese and Japanese residents worked as laborers, as well as slate pickers, cooks, laundrymen, porters, and cooks (Mosier and Williams 2002:100). This neighborhood was just to the east of Tesla

Plaza and was officially comprised of only four houses and a bunkhouse. A laundry and possible gambling hall was located in the easternmost house. The livery stable, not associated by Tesla residents as part of Darktown/Chinatown, and another grouping of unidentified houses were located on the north side of the creek from the main Darktown/Chinatown neighborhood. There is comparatively little information known about this neighborhood, such as when the houses were constructed. It is unknown if the houses were similar to those in the other neighborhoods or were built independently. In photographs of Darktown/Chinatown, the houses do not resemble those built by the company.

Harrietville was the largest residential neighborhood in Tesla; it was also the most diverse. Residents were Euro-American, African American, European, Canadian, Australian, and Chinese (Mosier and Williams 2002:100). They were also employed in the widest variety of jobs, including butchers and dairymen, nurses, and skilled and non-skilled underground positions. The neighborhood was built in 1899 to house the increasing number of families who were moving to the mines (Mosier and Williams 2002:98). Harrietville had 45 four- and six-room houses arranged in narrow rows on the south side of Corral Hollow Creek. Unlike the other neighborhoods, Harrietville houses were not identical. The smaller houses up the hill, built for single men, did not have running water. The larger houses located along the creek, built for families, had yards, fences, and running water. The row of larger houses was derisively known as Silk Stocking Row by the single men living in the neighborhood (Mosier and Williams 2002:98-100). The school, dairy, stockyard, and slaughterhouse were also located in Harrietville.

At least two clusters of dwellings were located outside the official boundaries of these residential neighborhoods. These dwellings were temporary tents and shacks located in close proximity to other neighborhoods. A small tent community was located on Fry's Flat between the Tesla Plaza and Frytown. A second cluster of tents was located in Jimtown, on a flat next to the creek. It is possible that other unofficial houses or neighborhoods existed around Tesla, including

some associated with Darktown/Chinatown. Some of Tesla's workers commuted from the town of Harrisville, located along the stage road to Livermore (Mosier 2003a).

The spatial organization of the mine and town of Tesla appear to have been built following the ideology of the model company town. Workers were segregated along occupational lines and social distance was enforced through geographic separation (Van Bueren 2002a:4). While it would seem counterintuitive to have the managerial housing closest to the noisiest, most noxious part of the mine, these houses were located here so mine owners could have actual or implied oversight of the employees.

Rent for a four-room house was $4 per month, and $6 per month for a six-room house (Mosier and Williams 2002:92). Rent for the overcrowded bunkhouse was $22.50 a month, which included room and board. Each of the bunkhouses had 30 rooms with one or two beds, and while each bunkhouse held 60 men, some had as many as 100 (Mosier and Williams 2002:93). The final bunkhouse was constructed in October, 1900, for the Chinese and Japanese laborers (*Oakland Tribune [OT]*, 8 October 1900). In 1899, a new neighborhood, Harrietville, was constructed for the growing number of miners with families moving to Tesla (Mosier and Williams 2002:119). This neighborhood also included four- and six-room cottages.

The 1900 Census

The 1900 U.S. Federal Census is the only census available for the town of Tesla. Although the population at Tesla was known to be periodically larger, only 670 residents were recorded in the summer of 1900 (Mosier 2003b:46). This may be because coal was in less of a demand during the summer, so workers employed at the mine either traveled to find other work, or else took vacations, depending on their status. Of these 670 residents, 63 percent were Americans and 37 percent were from overseas. A majority of the Americans was from California, while the remainder included people originally born in coal mining states such as Washington, Oregon, and Pennsylvania (Mosier 2003b:46). The foreign-born residents included Japanese (7 percent of the population), Italian (5

percent), Welsh (4 percent), German (3 percent), English (3 percent), and Canadians, French, Irish, Austrian, Chinese, Scandinavian, Belgian, Swiss, Mexican, Argentinean, Australian, and Jamaican residents, each comprising 2 percent or less of the population (Mosier 2003b:46).

Men made up 70 percent of the population at Tesla in 1900 (Mosier 2003b:47). Of these men, 55 percent were single. More than half of the men working in the town – 190 – were miners. A total of 356 men were employed. Chinese men were employed as day laborers and laundrymen, while men from Japan were worked as miners, barbers, and foremen (U.S. Federal Census 1900). Women at Tesla were employed as nurses, teachers, servants, and housekeepers, although married Anglo American women rarely worked outside of the home. Married women of other ethnic backgrounds were statistically much more likely to work outside the home.

A total of 132 households were recorded at Tesla on this census. Of these households, 24 housed at least one boarder. In many instances, families who took on boarders did so to earn extra money (Metheny 2007:234). A few women whose husbands worked for the company worked as dressmakers, also to bring in extra income. Eleven households included members of their extended families (U.S Federal Census 1900).

Children were at school from age 5 to about 15. One 14-year-old was employed as a coal miner, two 15 year olds were drivers for the coal mine, and three 16-year-olds worked as unspecified day laborers or as workers in the mine (U.S. Federal Census 1900).

The Company Store

In 1898, a company store was constructed to serve all of the residents of Tesla. The *San Francisco Chronicle* noted that “it is understood that the miners will work on a union scale and the company will not insist on boarding them or making the buying of supplies from the company’s stores compulsory” (20 March 1897). However, it was known among the workers that they would be “subject to dismissal” if he or any members of his family purchased goods from Livermore or Tracy.

Many people did make the trip under cloak of darkness and “many were dismissed” (Leary n.d.:11). Outside vendors who came into Tesla were beaten (Mosier and Williams 2002:115).

The *Overland Monthly* noted, “For convenience [the company] has established a system of coupon books to furnish currency between its departments and save-bookkeeping. The employee buys or is given against his wage account a book containing five, ten, and twenty dollars worth of coupons of the denominations of five, ten, twenty-five, and fifty cents. These coupons are good for their face value at the store, the laundry, the tailor, shoemakers, or barber’s shops, or indeed anywhere in town” (Greene 1898:523). At the end of the month, rent, groceries, and anything else owed the company would be taken out of a worker’s wages (DeWelt 1965:5). Not all purchases made by the residents could be tightly controlled, however. Leary (n.d.:11) mentions that men would ride their bicycles to Livermore or Tracy to purchase outside goods, sneaking them into town under their coats. Another former Tesla resident mentioned that Sears & Roebuck catalog was “a fairy store-house of treasures, and their catalogues were truly our ‘wishing-books’” (DeWelt 1965:8), though it is unknown if anything could actually be purchased.

As the town was essentially complete, community organizations such as social clubs and churches were formed. The social organizations included the Glee Club, the Baseball Club, the Ancient Order of United Workmen, and the Ancient Order of Foresters (Mosier and Williams 2002:135, 145, 152). Organized forms of recreation, such as the baseball team, were effective means of creating a sense of pride and company loyalty among miners and their families (Metheny 2007:145). They were also effective in creating bonds between men who normally would not interact in the work environment. Tesla began to make the social pages of the *Oakland Tribune* in 1900, which included the comings and goings of residents.

Perhaps in an effort to foster a greater sense of community within the town, front porches were added to all of the Treadwell Row houses in 1901 (Mosier and Williams 2002:93). “Tree planting [was] getting to be the fad around town” and, surprisingly, a resident of Jimtown built a new

addition to his home (*OT*, 31 January 1901), indicating certain segments of the populations did feel like Tesla was “home”. It has been suggested that people living in inherently unstable towns such as Tesla would be unwilling to make any investments in homes they did not own, but this was not the case at Tesla, or at other coal mining company towns in the United States (Metheny 2007:211). While monotonous housing limited personal expression, residents sometimes were able to modify the company’s requirements to fit their own needs.

Diversification and Winding Down

The prices of Tesla coal continued to fall into the twentieth century, down to $4 per ton in Stockton (Mosier and Williams 2002:73). In Oakland, probably a more competitive market, it was sold for $3 per ton. Perhaps to mitigate a loss in profit from coal alone, the SF & SJ Coal Co. began to diversify its products.

One of the company’s original plans was to construct a coal-fired electric plant, with the grand ambition that it would provide electricity from Oakland to Stockton (Mosier 2003b:30). The town was, in fact, named after inventor Nikola Tesla who had recently proven that alternating-current electricity could be conveyed safely over great distances. This plant was never built. The company did, however, open a briquette manufacturing plant in Stockton. There, coal was combined with oil under a contract with the Earl Crude Oil Company of Southern California to make briquettes (*LAT*, 22 November 1901). These briquettes were heavily advertised in the local papers. The company also built a brick and pottery-manufacturing plant, Carnegie, to make products from the clay being extracted from the Tesla mines (*LAT*, 11 September 1901). Carnegie is located further east down Corral Hollow from Tesla, within present-day Carnegie SVRA (Mosier and Williams 2002:247). The company also mined lime and manganese elsewhere on their Corral Hollow holdings, sending examples of their products to the 1901 Pan American Exposition in Buffalo, New York (Mosier and Williams 2002:157).

In 1902, Tesla's owners incorporated the Pacific Window Glass Company to mine sand at Tesla and produce glass at a factory in Stockton. The same day the glass factory opened in September of 1902, the Tesla briquette plant in Stockton burned down (Mosier and Williams 2002:204, 250). The briquette plant was rebuilt in February of 1903 with loans from the California Safe Deposit and Trust Company but it again burned down in August of 1905, essentially ending coal mining at Tesla (Mosier and Williams 2002:205; *OT*, 10 October 1905).

After the second briquette plant burned down, Tesla became "the scene of a dying mining town" (Mosier and Williams 2002:303). For some months, the families remained in Tesla while the men walked the five miles or took the railroad to Carnegie to work (Leary n.d.:11). The only people who stayed behind were the few men who were needed to mine sand and clay and to run the brick plant. Most of the people eventually moved down Corral Hollow from Tesla to Carnegie, or left altogether.

Information becomes increasingly scarce as mining operations diversified and slowed. In January of 1906, labor officials from the Building Trades Council of Alameda visited Carnegie and reported "the men are treated fine and are given the best conditions of any place in that line in the United States… The management, it is said, will gladly concede the nine-hour day" for pottery workers (*OT*, 31 January 1906).

The 1906 earthquake on the San Andreas Fault, which so severely damaged San Francisco, also dealt a serious blow to Tesla, damaging and destroying a number of buildings. It would seem that such a large-scale disaster would be a boon to a factory that made construction materials, but the company was unable to capitalize on the situation. The California Safe Deposit and Trust building in San Francisco, which contained all of the loan books and other papers for the SF & SJ Coal Co., was burned. The fire was subsequently used to falsify the books on how much the Treadwells owed the bank. As a result, the bank failed in 1907 and was declared insolvent (Mosier and Williams 2002:269, 303). The clay workings and glass factory were temporarily shut. At the end of 1907, bank

director James Treadwell was charged with embezzlement, although it was eventually dismissed for lack of evidence (Mosier and Williams 2002:288, 296)

In 1909, two severe floods hit Corral Hollow, undermining the train trestles and damaging the plants. All of the employees were let go. In 1910, the plant at Carnegie was reopened and 200 men were employed, but in 1911, again, a severe flood hit the hollow. All work ceased in September of that year (Mosier and Williams 2002:304). The mine buildings were dismantled in 1914 and the railroad track was removed in 1916. In 1918, the underground workings at Tesla caught fire, destroying the underground timbers. The prohibitive cost to retimber the mine discouraged any future coal mining (Mosier and Williams 2002:314).

After Tesla

After mining ceased in the Tesla mines, the property was sold off to cattle ranchers. A few small-scale sand and clay companies leased portions of the Tesla property from the ranchers for mining purposes. One of these mines, the Tesla Clay Company, operated between 1939 and 1942 at the far northern boundary of State Parks property (Mosier 2003a:22). Small amounts of clay were shipped from this mine to local brick and pottery plants. The Livermore Sand and Clay Company, which was located just north of the State property boundary, operated between 1926 and 1928. The tailings piles from their mines were dumped on what is now State property (Mosier 2003a:21). The last of these mid-twentieth century mines was closed in 1960 (Mosier 2003b:6). Cattle continue to graze on the property today. Evidence of the cattle ranching can be seen in the stock tanks in the middle of Bartnett Avenue and cattle trails in the hills.

Conclusion

The landscape of Corral Hollow is complex and, like all landscapes, has changed significantly over time. The most prominent features still visible are the large waste rock piles from the Tesla Mines. The Tesla period of Corral Hollow (1890-1911) is also the most well documented, with newspaper articles and books written about the time. Before the founding of the town of Tesla, Corral

Hollow was home to a series of smaller-scale coal mines, a sheep ranch and, originally, was the home of two Native American groups. Following the demise of the town of Tesla, Corral Hollow was again mined by several small-scale mining operations and used as a ranch. Ultimately, Parks purchased the land for an off-highway vehicle park.

The landscape of Corral Hollow contains large and complex industrial and domestic archaeological sites that were created during these tumultuous and sometimes uncomfortable periods in history. The imprint of the SF & SJ Co. mines and the town of Tesla was so monumental, the older layers and history were effectively obliterated. Much of the standing architecture from Tesla has been removed, rendering this period less visible as well.

The following chapters will discuss landscape theory and how a cultural landscape can be used as a management tool by State and National parks. Landscape as a management tool will then be discussed in Chapter 4, leading to a discussion of Tesla as a landscape and how its interpretation can be part of Parks' management plan.

Chapter III. Landscapes

Introduction

The landscape of Corral Hollow has undergone steady, and occasionally intense, modification by humans since it was initially inhabited. The landscape may appear static in its present state, but it reflects a temporal layering of these changes. It also continues to evolve. The different ways the landscape has changed reflected the needs of the people modifying the landscape at various points in time. These people were operating within a nationwide and site-specific historic period, as presented in the previous chapter. The landscape changes, too, are reflective of the specific historic context within which Tesla was created and modified.

Landscapes are used in a variety of academic and governmental settings as a way of understanding change through time in a specific place and in a specific historical context. This understanding of a landscape allows it to become a means of managing the physical space that the cultural resources inhabit. This chapter presents a discussion of cultural landscapes in general, industrial landscapes in particular, and how the landscape approach is utilized today. The ways in which cultural landscapes are handled in National and State parks will also be discussed. Landscapes are used by these entities as management tools and will be similarly used in this thesis as a vehicle for interpretation (chapters 4 and 5).

Cultural Landscapes

A “landscape” is a view of natural scenery, while a “cultural landscape” can be any geographic area that has been modified by people (Birnbaum 1994). Cultural landscapes can include mining and town sites such as Tesla, designed gardens, farms, urban cityscapes, or aggregations of prehistoric sites (Alanen and Melnick 2000:3). A landscape is inherently cultural because it “physically embodies the history, structure, and contexts of human behavior in a way that they are not readily separable” (Hood 1996:121). These physical manifestations of culture can be studied using the theoretical framework of the “landscape approach,” a framework within which researchers can understand data about a landscape.

The idea of a landscape denotes “the interaction of people and place” (Groth 1997:1). A landscape reflects the values of the culture that created it and, just as archaeologists use artifacts to study a culture, a landscape and changes to that landscape can be studied to understand a culture and its people (Waghorn 2002:38). These changes and the meanings behind them are rarely conscious. Landscapes, like cultures, are constantly evolving, sometimes in slow and almost imperceptible ways. Both culture and landscape exist in a continuum of usage and specific points in time can only be individually understood in the context of these changes over time (Hood 1996:122), such as the rapidly changing environment of company towns and corporate mining at the turn of the twentieth century.

Industrial Landscapes

Industrial landscapes are defined as geographical regions that have been used historically for industrial purposes and have been extensively modified for those reasons. These landscapes reflect the cumulative history of industry-related land use practices, distinctive patterns of spatial organization, and cultural traditions (Hardesty and Little 2000:110). The ultimate shape of mining landscapes, furthermore, is determined by the distribution and type of ores and by the attitudes of the miners who settle the landscape (Francaviglia 1991:10-11). These landscapes are also shaped by the historic context within which they are created.

Mining landscapes may seem, on the surface, to be completely rational and functional. Even the homes that people lived in and the ways these homes were laid out were based upon a design by a mining engineer to produce maximum efficiency (Francaviglia 1991:48). However, this same spatial organization will also have “cultural meaning that is not necessarily reducible to function” (Hood 1996:123). Industrial landscapes can be analyzed in terms of the mine organization, the town organization, and even the organization of the individual household (Metheny 2007; Van Bueren 2002b).

People in positions of power and authority can transform meaning through the physical manipulation of the landscape, including the layout of the town and the spatial separation of different classes and ethnicities of people. In this sense, mining and other industrial landscapes reflect the mindset of the people who created them. Because mining in the West took place within a global economy that was reliant upon labor drawn from around the world, the mining landscape, before the advent of large corporate mining towns, reflected the ideologies these immigrants brought with them (Hardesty and Little 2000:111). The landscape of a relatively small-scale mining operation is typically described as a vernacular landscape. In large company towns where the landscape is tightly controlled, these vernacular alterations may take place on a smaller scale, such as in a yard, and be evident in archaeological data. The town itself would be reflective of the company's corporate ideology (Hardesty and Little 2000:144).

Mining transforms landscapes into physical expressions of mining tools, the miners' knowledge, labor and materials (Hardesty and Little 2000:138). Although what is present on the landscape (e.g., the waste rock piles) can be understood in purely functional terms, the ways the natural resources are accessed, the ways the people are used to access these materials, and the ways the materials are distributed throughout a society are social acts, not just material, and have physical manifestations on the landscape (Hood 1996:123).

Industrial landscapes have historically been given short shrift in the realm of landscape studies. Industrial landscapes are less idyllic than designed parks or gardens, are less common than farmsteads, and may even be toxic to visitors (Conesa et al. 2007). However, these "discordant" landscapes that have been traditionally interpreted as ugly provide a wealth of information about the mindsets of the people creating and inhabiting the landscape. Because they are not immediately pleasing to the eyes of visitors, the simple act of their preservation may promote a dialogue among visitors who wish to understand why the site is important and what the site means (Schofield 2005:145).

Cultural Landscapes and Archaeology

At first glance, it may appear that archaeology would be anathema to the idea of landscapes. Like industrial landscapes, archaeological landscapes were historically undervalued as an arena of study. Archaeologists focused attention on individual sites without looking at the interrelatedness between individual sites or between the sites and the landscape (Hardesty 1990; Waghorn 2002:40). This method of assessing sites is especially problematic when the landscape is comprised of large-scale, interrelated sites like the remnants of a mine.

Large-scale archaeological remains can pose a problem when assessing them for significance. They are often complex, containing many sites, buildings, and structures that are significant as a whole, but might not be individually eligible for the National Register (Hardesty and Little 2000:133). Large-scale sites are formed through sequential episodes of occupation and abandonment, leaving behind horizontal stratigraphy, not vertical stratigraphy like the typical archaeological site (Hardesty 1990:48). Assessing these archaeological remains using the cultural landscape approach renders them more manageable.

Industrial landscapes and archaeological landscapes are among the many subtypes of cultural landscapes now recognized by state and federal regulations as valid resources for management purposes. Landscape, as a means of understanding a place, allows for large areas, a wide range of sites and structures, and significant changes to these resources over time to be understood as a single entity. For agencies trying to manage numerous parks, this method is invaluable. It is also important because it gives voice to some, if not all, of the components of a landscape, allowing for a multivocal interpretive process, in Parks and elsewhere.

Landscapes in National Parks

The National Park Service (NPS) has specific guidelines for the identification, evaluation, treatment, and management of landscapes. The Federal management practices provide a good model for practical landscape research and their methods have been adopted by California State

Parks. This brief overview of their methods will illuminate how landscapes are identified, evaluated, and “treated,” including interpretation as a management tool.

NPS defines a “cultural landscape” as “a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values” (Birnbaum 1994). NPS subdivides cultural landscapes further into four separate categories: historic sites, historic designed landscapes, historic vernacular landscapes, and ethnographic landscapes. Ordinary landscapes, like Tesla, fall into the historic vernacular category:

An historic vernacular landscape is a landscape that evolved through use by the people whose activities or occupancy shaped that landscape. Through social or cultural attitudes of an individual, family, or community, the landscape reflects the physical, biological, and cultural character of those everyday lives. Function plays a significant role in vernacular landscapes. They can be a single property such as a farm or a collection of properties such as a district of historic farms along a river valley. Examples include rural villages, industrial complexes, and agricultural landscapes (Birnbaum 1994).

Once a landscape can be assigned to a category, NPS recommends they be thoroughly researched for management purposes. The investigations consist of four major phases: identifications, evaluation, treatment, and monitoring (Birnbaum 1994). The identification phase consists of historical research of the landscape, as well as an inventory and baseline documentation of existing conditions. The identification process gives the researcher sufficient information to evaluate the significance of a landscape and also provides NPS a means of monitoring any changes to a landscape that might take place over time.

Once the history of a landscape has been researched and the features present on a landscape have been inventoried and documented, changes to the landscape over time can be

understood (Birnbaum 1994). These findings help identify which features were most important on a landscape and when they were most significant, according to criteria for inclusion on the National Register of Historic Places (Appendix A). For landscapes to be considered significant, the character-defining features that contribute to its significance must be present (Birnbaum 1994). Integrity, as defined by NPS is “a property's historic identity evidenced by the survival of physical characteristics from the property's historic or pre-historic period” (Birnbaum 1994). The evaluation phase provides NPS a way of assessing how much effort should be required when managing the landscape.

After a landscape’s significance has been evaluated, a treatment plan for how to manage it in the future must be established. The National Park Service proposes four different treatment options for cultural landscapes: preservation, rehabilitation, restoration, and reconstruction (Birnbaum 1994). Each of these methods will determine how a landscape is interpreted.

Of paramount importance to the selection of a treatment plan is consideration of the landscape’s ability to convey its historical significance. Also important is the present-day appearance of the landscape. If a landscape does not retain any standing structures, would it be rendered more or less historically significant if the structures were rebuilt? Can an archaeological landscape with a few isolated visible features convey the same story as a reconstructed landscape? What about visual reconstruction on placards or in a visitor center? What can be done to preserve the landscape as it is?

NPS recommends that the choice of a treatment plan is proportional to a landscape’s integrity. If a landscape has a high level of integrity, preservation is recommended. However, if a landscape has been heavily altered, reconstruction of the landscape as it appeared during a specific point in time can be considered (Birnbaum 1994). NPS provides extensive guidelines for implementing any of these four treatment plans (NPS 2009b). Regardless of which treatment plan is implemented, the interpretation of the landscape is an important component in the process. The

greatest danger in any of these options is “creating a false picture of history” (Birnbaum 1994), and a thoughtful interpretive plan can aid in conveying the significance of a landscape.

The process should not be considered complete once the original research and management plan is done. Rather, continuing research is an important part of understanding a site’s significance (ICOMOS 2007:12). The final step in the management of cultural landscapes is to identify how to continue to manage the property once the initial documentation is done and a treatment plan is in place. This process of continuation includes a plan for monitoring change in the landscape and a decision-making plan for when a landscape needs to be altered for safety or other management reasons. In the latter case, the importance of the historical fabric of the cultural resource needs to be weighed against current management concerns (Birnbaum 1994). Interpretation is frequently used as a management tool to prevent changes to a documented landscape. Interpretation can both convey a sense of importance and significance to the visitor and will physically guide the visitor away from damaging the landscape. These ideas will be discussed further in the “Interpretation as a Management Tool” section in Chapter 4.

Landscapes in California State Parks

While Federal entities provide specific guidelines on how to manage landscapes, California State Parks does not. Much of the historical and evaluative research for landscapes done by Parks follows the NPS procedures outlined above.

Parks goal for identifying and evaluating a landscape is ultimately to conserve it for visitors now and in the future. The NPS guidelines provide a straightforward means of identifying a landscape, placing it in its historic context, and evaluating it for significance. Once these phases are complete, State or National parks can begin to decide how to manage the landscape and how to interpret the landscape features for visitors.

Specific guidelines such as those created by NPS and used by California State Parks allow managers to deal with a wide range of different landscapes. While a designed park may look nothing like the remains of a steel mill, the process for managing these resources remains the same.

Industrial Landscapes in Parks

The first industrial landscape recognized by the National Park Service was Lowell National Historical Park in Massachusetts in 1970 (Alanen 2000:135). Lowell National Historic Park comprises the landscape of the first planned industrial town in New England, constructed for the Boott Mills' textile plant in the 1830s (Beaudry 1989:19-20). Unlike other National Parks, Lowell is not a bounded "park" but instead consists of a series of buildings in downtown and along the river that once powered the mills (Stanton 2006:3). Rangers explain that the "park" encompasses the whole of the industrialized city. Visitors are invited to partake of "opportunities to experience Lowell in exciting ways" including riding historic replica trolleys or walk along the river to visit historic sites and museums (NPS 2009a). Lowell is presented as the Industrial Revolution's first major manifestation in America. Lowell is also presented as an important site of immigrant and labor history, which were revolutionary ideas when the park was founded in the 1970s (Stanton 2006:16).

While Lowell was an original component of the Industrial Revolution and continued to be a manufacturing center into the twentieth century, the landscape is less explicitly "industrial" than other sites, especially mining landscapes. These sites include Kennecott's copper mining complex in Alaska, and Keweenaw, a copper mining site in Michigan (Alanen 2000:135). The Kennecott company town was nominated to the National Register as a district in 1978 and was acquired by the NPS in 1998 (NPS 2007). The Kennecott mine and town, described as a "spectacular industrial and residential sprawl," includes industrial mine buildings, mill buildings, worker cottages, mine camps, and the railyard (Pierce and Spude n.d.:2). The NPS is currently in the process of stabilizing and rehabilitating the mill and company town buildings.

The park at Keweenaw provides views of waste rock piles, abandoned commercial and residential buildings, and hundreds of company-built houses (Alanen 2000:135). This park has provoked strong reactions, including the accusation of being the “bleakest” park in the system. Alanen argues that the site also displays the effects of technological changes, the role of immigrant groups in mining, the history of corporate paternalism, and the distinctive landscape features associated with the boom and bust cycles of mineral extraction (2000:136).

Industrial landscapes have repeatedly been described as one of the least popular types of landscapes for visitors (Cameron and Gatewood 2003:58; Shackel 2001:657). Proffered explanations for why these landscapes may be the “least preferred” include the difficulty in being interested in something so recent, or the possibility that people who are currently involved in the work are “bitter” about it, while those not involved in the industry will not find large-scale industrial landscapes appealing because of their “size and scale, grit, and ostensible absence of the human element” (Cameron and Gatewood 2003:58). Some of these evaluations are easily understood. Mining landscapes are massive, scarred, perhaps even ugly.

However, industrial landscapes and their plainly evident large-scale alterations of the landscape are reflective of human agency and people’s ability to alter their surroundings. Industrial landscapes may also invoke visceral reactions – good or ill – in visitors, presenting a opening for a dialogue on the history and the importance of these landscapes. This dialogue takes the form of interpretation in parks and other public spaces. Theories behind interpretation and interpretive guidelines are presented in the following chapter.

Conclusions

A “landscape” is a view of natural scenery, while a “cultural landscape” can be any geographic area that has been modified by people (Birnbaum 1994). Cultural landscapes can include mining and town sites such a Tesla, designed gardens, farms, urban cityscapes, or aggregations of prehistoric sites (Alanen and Melnick 2000:3). A landscape is inherently cultural because it

“physically embodies the history, structure, and contexts of human behavior in a way that they are not readily separable” (Hood 1996:121). The “landscape approach” is a framework within which researchers can understand data about a landscape and denotes “the interaction of people and place” (Groth 1997:1).

Cultural landscapes are an integral part of the nation’s park systems, including California’s State Parks. Landscapes are identified, evaluated, and treated under guidelines that are meant to manage and preserve historic properties. These guidelines provide a means for parks to manage their resources, including identifying what is important, when it was important, and how this importance should be conveyed to visitors via interpretive programs.

Interpretive programs then take information on historic properties and provide these data to the public in ways that will teach, engage, and possibly even provoke the visitor to consider something new and controversial. The concept of interpretation as a management tool is discussed in the following chapter.

Chapter IV. Interpretation as a Management Tool

Introduction

Interpretation plays a crucial role in how Americans remember their history. Interpretation, landscapes, monuments, archaeology, and all other means of conveying the past to visitors in the present helps to create an "official public memory" for a multitude of reasons, including reinforcing patriotism or invoking a particular, nostalgic heritage (Shackel 2001:655). Government agencies have traditionally advanced the notion of the "community of the nation" in their interpretive programs, often while suppressing authentic, if painful, local group memories (Shackel 2001:659).

In the past, historic landscapes in parks were essentially "frozen in time." Landscapes were restored to a particular point in time, intimating that certain periods were more deserving of interpretation (Francaviglia 2000:68). One example of this took place in Harpers Ferry in West Virginia. When the city was acquired by NPS, it was decided that the Civil War period was the most significant and anything that pre- or post-dated the war was removed and the history was ignored (Moyer and Shackel 2008). Today, the interpretive emphasis is upon recognizing that landscapes are "dynamic, evolving entities" and interpretive and preservations efforts should be directed toward preserving those dynamic qualities (Francaviglia 2000:68).

One of the challenges in interpreting history and archaeology to visitors today is the need to relate interpretation to contemporary social and political issues (Lucas 2004:119). Heritage needs to be communicated in a way to make the past believable, meaningful, and relatable to people today. The interpretation of the histories of traditionally marginalized peoples, including the history of working class people, is also currently being given more emphasis (Stanton 2006).

Interpretation in National Parks

The National Park Service (NPS) was the first federal agency to use interpretation as a management tool; an educational committee was organized for the purpose in 1918 (Mackintosh

1986; Ward and Wilkinson 2003:1-5). Interpretation was primarily seen as means of teaching the public about the natural and cultural histories of the various parks. Interpretation was given particular emphasis in the National Park system much later when William Penn Mott, Jr. Became the director in the 1990s. Mott implemented a five-year plan, "The Interpretive Challenge," which promoted a number of goals. The challenge was intended to stimulate and increase interpretation and visitor service activities for greater public impact, to share effectively with the public an understanding of critical resource issues, to increase public understanding of the role and function of the National Park Service, to expand the role and involvement of citizens at all levels of the Park Service, to seek a better balance between visitor use and resource management, and to enhance NPS's ability to meet the diverse uses that the public expects in the National Parks (Watson 1989:78).

Today, National Park managers and park managers in general use interpretation as both a "soft" and a "hard" means of management (Uzzell 1989:1-2). Interpretation is "soft" because it has long been argued that once a visitor understands the meaning of a site, the visitor's attitudes towards it will change. Interpretation can also make a visit more enjoyable. Interpretation is concurrently a "hard" management tool, utilized to shepherd the public along marked trails and away from sensitive parts of the landscape (Uzzell 1989:1-2). By shepherding and educating visitors, significant sites or landscapes can be effectively conserved. NPS implements two different kinds of interpretation to meet these management goals: passive interpretation, such as signage and brochures; and active interpretation, such as guided tours and campfire programs.

Interpretation in California State Parks

California's State Park system was created in 1927, but interpretation was not a part of Parks' mission until 1967. Parks' current interpretative mission statement is:

> Interpretation is a special form of communication that helps people understand, appreciate, and emotionally connect with the rich natural and cultural heritage preserved in parks. It is the mission of interpretation in California State Parks to convey messages that initially will help visitors value their experience, and that ultimately will foster a conservation ethic and promote a dedicated park constituency [Ward and Wilkinson 2003:2-6].

California's parks utilize interpretation as both a soft and hard management tool. Parks considers interpretive programs "necessary to enrich the experience of park visitors, deepen their understanding and appreciation of the natural world and their heritage, and to encourage their support for the preservation and perpetuation of these values" (Parks Operations Manual 1986, cited in Ward and Wilkinson 2003:2-2). Interpretation in the California State Parks is regarded as the "preferred light-handed management tool to help increase the visitor's enjoyment and protect the resources" (Ward and Wilkinson 2003:1-2). By educating visitors about the significance or the sensitivity of the resources, Parks can protect the resources from visitor damage. The stated goals of interpretation in the park system are to protect the resource by inspiring the visitor and connecting the visitor to the resources, and to protect and control that connection with management (Ward and Wilkinson 2003:2-2).

Types of Interpretation in State Parks

State parks were created to protect the state's resources; if visitors are harming the resources, then the primary reason for beginning the parks has been violated. Interpretation is a means of educating the visitor about the park.

The official Parks interpretation handbook defines two basic types of interpretation: personal and non-personal. Personal interpretation involves interaction with the visitor through tours or presentations, while non-personal interpretation conveys information through brochures and exhibits (Ward and Wilkinson 2003:1-12). The Parks handbook describes a number of negative characteristics of the non-personal method of interpretation, such as the visitor's choice to read only what he or she wants, the up-front expense of creating placards and brochures, and the risk of "inappropriately" placing signs in scenic locations (Ward and Wilkinson 2003:1-14). However, non-personal interpretation also gives the visitor the option to learn what and when he or she wants and, if done correctly, the interpretive material can be utilized for many years. Non-personal interpretation can "provide resources for independent exploration," helping visitors to become familiar enough with

a park to forge their own path in understanding a resource (Ward and Wilkinson 2003:2-7). Non-personal interpretation also does not need to be done independently of personal interpretation; the two can be used simultaneously.

Personal interpretive services, such as talks or walks, allow the interpreter to control the order of the information that is conveyed. The presence of an interpreter also allows the visitor to ask questions directly. Personal interpretation is also presented as more "authentic," with more opportunities to protect resources and to provide visitor enjoyment of resources (Ward and Wilkinson 2003:1-15). However, it has been estimated that only 20-percent of park visitors will attend a talk or walk and the overall cost is much higher (Ward and Wilkinson 2003:1-15).

Interpretation as Management in Parks

Interpretation is an art; it stresses ideas and relationships, not just isolated facts and figures (Ward and Wilkinson 2003:1-11). One of the biggest problems of park management is how to both preserve resources while simultaneously providing for the public enjoyment (Watson 1989:79). In concert with this is the multifaceted nature of public enjoyment. Should a park be set aside for hikers? Cyclists? Or in Tesla's case, OHV-users? If a variety of users share the park, how are these users each communicated with?

Connecting with the Visitor: Interpreting Cultural History in Parks

State Parks considers a primary benefit of interpreting cultural history to be the tolerance it creates for others (Ward and Wilkinson 2003:2-2). Interpretation is a "protected and neutral atmosphere through which visitors can come to know others different from themselves. It also provides opportunities for many to discover their own culture and history, which in today's melting pot society can become lost" (Ward and Wilkinson 2003:2-3). Parks' interpretation handbook provides only a few general guidelines for the interpretation of cultural and historical resources of a park. Despite the assertion that interpretation is meant to be neutral, it is pointed out in the Parks handbook that discussing sensitive or controversial aspects of culture "is something we should be doing" as a

way to start a dialogue (Ward and Wilkinson 2003:2-3). It is possible that this suggestion is a way of counterbalancing older interpretive plans that sidestepped anything controversial. This open dialogue is sustained by asserting that the interpreter's perspective is only one of many possibilities, maintaining a sense of balance in interpretation.

Managing the Visitor: Interpretation in State Parks

The primary reason for interpretation in California's state parks is to meet management goals. If management goals are not being met, interpretation "becomes simply entertainment" (Ward and Wilkinson 2003:2-7). Parks' three stated management goals of interpretation are to protect the resource, protect the visitor, and to promote the agency (Ward and Wilkinson 2003:2-7). These three goals are rather basic, but they can be expanded to include any type of interpretation that protects the resource through education and visitor engagement.

Interpretation of Landscapes

According to University of California, Berkeley Professor of Architecture and cultural geographer Paul Groth, the "overarching objective of cultural landscape writing is to inform the public" (1997:10). However, specific guidelines on how to interpret cultural landscapes are limited. NPS provides very few guidelines on how to interpret cultural landscapes (Birnbaum 1994). They define landscape interpretation as "the process of providing the visitor with tools to experience the landscape as it existed during its period of significance, or as it evolved to its present state," but do not explain how beyond a few generalities. NPS does suggest, though, that the type of landscape interpretative plan enacted may be closely linked to the integrity and condition of the landscape. If a landscape has high integrity, obtrusive signs should be avoided, but for landscapes with a diminished integrity, interpretation should be used to help visitors visualize the landscape as it existed in the past (Birnbaum 1994). In instances where a landscape has varying degrees of integrity, a multi-faceted approach to interpretation can be considered (NPS 2009b).

The identification of a place as a landscape (an expression of culture, writ large) provides avenues for interpretation, including the process of place making (ICOMOS 2007; Markwell et al. 2004; Walker 1997:167; Waterton 2005). "Place making" is the process of deciding what a landscape can tell, and what it can (or should) not (Markwell et al. 2004:459). Sometimes this process is seen as patronizing when the people living in a landscape already have a sense of place, though it may be one that differs from the one the "expert" wants to tell (Waterton 2005:313, 315). This is particularly problematic in an inhabited landscape, but may present problems in uninhabited, rural landscapes as well when the surrounding community has a stake in what is told.

Because interpretation can be fraught with problems, it is important to recognize that the landscape is comprised of layers of many different voices with the ability to speak to many different constituencies (ICOMOS 2007:6; Markwell et al. 2004:460). As stated above, these constituencies should be brought into the management process early, if possible. Another way of creating this sense of place for multiple groups of people is to create a self-directed interpretive walking tour, where the visitor can learn or explore on his or her own (Markwell et al. 2004:450; Ward and Wilkinson 2002).

Conclusions

Interpretation consists of more than a rote presentation of facts. Facts are presented to the visitor, but they should be presented in interesting, engaging, and even provocative ways to inspire the visitor (Ward and Wilkinson 2002:2-2, 2-5). The visitor may perceive interpretive programs as entertainment, but they are planned by park managers to lead visitors to act responsibly and care about the resources.

The California State Parks interpretive handbook does not provide any specific guidance for the interpretation of landscapes such as Corral Hollow. The following chapter will explain how other industrial sites are interpreted and will provide a suggested interpretive plan for Tesla.

Chapter V. Interpreting Tesla

Introduction

Interpretation is an art (Ward and Wilkinson 2003:1-11). Interpretation is more than the rote presentation of facts and figures, it must also stress ideas and relationships, inspire the visitor, and, at the same time, fulfill management goals. One of the biggest problems of park management is how to both preserve resources while simultaneously providing for the public enjoyment (Watson 1989:79). In concert with this is the multifaceted nature of public enjoyment. Should a park be set aside for hikers? Cyclists? OHV-users? While interpretation is one of State Parks' goals for all of its parks, the question again becomes, who is the interpretation geared toward? What are people interested in knowing? How will this information be conveyed? Will it be effective in fulfilling management goals?

This chapter presents the interpretive goals of the California State Park system in general and of the Off-Highway Division in particular. This is followed by a discussion of how industrial and mining landscapes are interpreted elsewhere around the world and, finally, Tesla's potential as an interpretable landscape.

Interpretation in California State Parks

According to Parks' statement of policy, the primary interpretive policy is to

> heighten and increase public understanding, appreciation, and enjoyment of the natural, cultural, historic, and recreational values of California as represented by the State Park System; to increase public understanding and concern for people's place in their environment, and thereby provide an increased desire to protect and enjoy the natural and cultural heritage of this state" [Ward and Wilkinson 2002:2-2].

Additionally, Parks' Interpretive Mission Statement reads

> interpretation is a special form of communication that helps people understand, appreciate, and emotionally connect with the rich natural and cultural heritage preserved in parks. It is the mission of interpretation in California State Parks to convey messages that initially will help visitors value their experience, and that ultimately will foster a conservation ethic and promote a dedicated park constituency [Ward and Wilkinson 2002:2-6].

These goals are tied to management concerns: garnering public support, controlling visitor behavior, and protecting the resource (Ward and Wilkinson 2002:2-2). Once a visitor knows about and cares about a park, the idea is that the visitor will be less likely to do harm to a natural or cultural resource.

Interpretation in Off-Highway Vehicle Parks

Because Tesla is an Off-Highway Vehicle State Park, its mission is slightly different than the Park system as a whole. Conservation is still a goal, and Parks intend to balance OHV recreation impact with programs that conserve and protect cultural and natural resources (State of California 2008b). In many parks, there is an inherent tension between different user-groups – OHV riders, mountain bikers, campers, hikers, or picnickers – and an enormous management concern is how to satisfy some (or all) of these groups. In the OHV parks, off-highway vehicle users are given precedence; the Tesla portion of Carnegie SVRA, though, will likely have some portions or all of the park set aside for non-vehicular recreation, if conflicts can be avoided (Buckingham, personal communication 2009; State of California 2009a).

The visitor profile for OHV parks is different from other State Parks and, as a result, interpretation and other management goals must be adjusted to fit these needs. Industrial, working class landscapes such as Tesla may be particularly well suited as a tool for reaching out to the OHV-riding public. Riders, perhaps more so than other segments of the park-visiting public, may identify as part of the same social community as Tesla's former residents. This may create a social community of stakeholders in a place where a descendent community does not exist.

How are other mining landscapes interpreted?

Black Diamond Mines

Black Diamond Mines Regional Preserve is part of the East Bay Regional Park District and is located in the Diablo Range north of Corral Hollow. Black Diamond Mines is the site of the first large-scale coal mining operation in California, although it started later than the first mines in Corral Hollow.

The productivity of the Black Diamond Mines spurred redevelopment in the Corral Hollow district. The American period land use pattern present in Black Diamond Mines (ranching to coal mining to sand mining to ranching to park use) also mirrors the pattern at Corral Hollow.

Interpretation of the mining landscape at Black Diamond is conveyed through a visitor brochure, a visitor's center, and underground tours of the mines. The brochure includes a topographic map of the park with some of the mining features marked and described. The visitor's center is located within the portal to the sand mine and 200-feet of an 1860s coal prospect tunnel is open for exploration (East Bay Regional Parks 2006). Tours of the early twentieth century Hazel-Atlas sand mine are also available.

While the mines at Black Diamond supported five sizable towns over the years, the residential aspect of the park is far less visible. The townsites are blocked from hiking trails by vegetation and are generally unmarked. The Rose Hill Cemetery is available for visitation and the park has posted a kiosk at the cemetery gate that identifies important personages buried inside.

Ludlow

Ludlow, or the Ludlow Massacre site, in southern Colorado, is the location one of the most infamous conflicts in labor history in the United States. Ludlow was a company town and the home of thousands of coal miners and their families during the early twentieth century. The miners went on strike in 1913 over a number of monetary and safety concerns. The company evicted the striking miners who relocated to a tent colony set up by the United Mine Workers of America (UMWA) on the outskirts of the town. The strike lingered on into the following year and, following skirmishes that April between strikers and mine guards, the National Guard of Colorado was sent in. Violence escalated, with the troops eventually setting the tent colony on fire, killing 19 people (McGuire et al. 2008:196-200).

Interpretation of Ludlow is much more explicitly political than at other coal mining sites. The interpreters, including archaeologists and historians, worked closely with the UMWA and modern miners to present a working class history of the site (McGuire et al. 2008:202, 214). This history includes not only the strike and the miners, but the lives of the families as well. Interpretation at the site consists of a memorial statue and an interpretive trail. Archaeological excavations are open to the public and the artifacts recovered from the excavations are displayed in traveling exhibits (McGuire et al. 2008:211-212).

Montgomery County Coal Mining Heritage Park

The history of coal mining in Montgomery County, Virginia, extends at least as far back to the Civil War, and may be as old as the Revolutionary War. In recent years, the landscape of Montgomery County began to change from a rural setting of farms and coal mining communities to a more densely populated setting with new communities, highways, and shopping malls (La Lone et al. 2000). The county decided to preserve the site of Merrimac, one of the largest mines and mining towns in the region, as a coal mining heritage park.

Interpretation at the Coal Mining Heritage Park was prepared in conjunction with applied anthropology students from Radford University, local public school districts, the county's parks and recreation department, and private interest groups. The university held two community meetings to learn from local residents and former members of the coal mining communities what they most wanted to see in the new park. The three most important features to these members of the community were picnic facilities, a playground, and a place where former miners could give talks to visitors (La Lone et al. 2000), all of which are indicative of an interest in keeping the park as a place for community gatherings.

The students decided that trail signage would be an important part of interpretation at the park, including ideas for the text of the signs and locations for them to be installed. Signs were designed to convey heritage information, as well as exhibits about archaeological work and the status

of changes to the park during construction. Transparent signs would be installed at “viewing spots” so visitors could see historic photographs overlaid upon the present-day landscape. Some of the signs would also have boxes for pamphlets containing further information and listening stations, where visitors could listen to recorded interviews with former residents.

The students also proposed construction of a replicated miner’s house to “provide an exciting exhibit portraying the mining heritage, and… a site for interpretive reenactment of the mining lifestyle” (La Lone et al. 2000). The interior would replicate those seen in historic photographs of nearby miner’s houses; the house would also include a garden and all of the associated outbuildings. Other proposed structures for reconstruction were the mine tipple, the company store, and storage buildings.

Along with the picnic areas and playground, the county built trails, an interpretive museum, and a visitor’s information center. The museum was designed to provide more detailed information about the life of the coal miners who lived in the region. The museum would contain examples of miner’s tools, daily dress, household items, a mine safety exhibit, and a large collection of photographs. At the community pavilion, events are held throughout the year for all members of community.

Interpretation of Tesla

Management

While the three above-mentioned parks interpret their industrial histories in different ways and with different theoretical takes on the past, each fulfills an important management goal for nearly any park: engaging the visitor. At Ludlow and in Montgomery County, it meant reaching out to social communities of other miners. The parks all used passive forms of interpretation, including signs and monuments, to convey the industrial history to the visitors. Montgomery County reconstructed some parts of the built environment, while Black Diamond Mines used imagery instead. Some of these interpretive techniques can be used at Tesla to fulfill the specific management goals of State Parks.

When the Tesla property was acquired as part of Carnegie SVRA, the addition was intended to be open to OHV riders. An EIR prepared for the Tesla-Alameda acquisition in 2000 proposed a number of information facilities and interpretive opportunities for riders:

- Key entrance point stations would be constructed at several locations throughout the project site to provide information to orient and guide recreational enthusiasts through the designated trail system.
- Vista point stations would provide visitors with information on local and regional geography and land use.
- Interpretative sites would provide information on the history of the project site and on the site's sensitive natural and cultural resources. The interpretive site located on the Tesla property would include the installation of a grate across the mine shaft opening for public safety. The grating would be designated to facilitate movement of bats into the mine shaft and to restrict access by park visitors.
- Information stations would include picnic tables, shade structures, and designated parking areas.
- Trail signage would be installed at key locations throughout the project site. Signage would include information relating to trail identification and difficulty and distance to trail intersections.
- Guided wildflower tours may be conducted in the Alameda grasslands area to increase visitor awareness of this sensitive habitat and to provide educational opportunities for nontraditional OHV enthusiasts (i.e., Four-wheel-drive vehicle owners) [Jones & Stokes 2000:2-8]

Because of safety issues inherent in OHV recreation on a former mining site and the recognition of Tesla as an important cultural resource, the planned level of ridership at Tesla has decreased significantly in the ensuing decade (Buckingham, personal communication 2009). OHV riders will only have access to the park during guided interpretive programs. Hiking trails will instead

be constructed, interpretative signage will be emplaced, self-guided and ranger-guided tours will be planned, and an interpretive center will be constructed within the park. In the long-term, Parks would like to open one portion of the mine for underground tours, if possible (Buckingham, personal communication 2009). The overarching goal is to provide interpretive opportunities for the visitors and, once a visitor's center has been constructed, to protect the park from trespassing and vandalism (Buckingham, personal communication 2009).

Visitor Input

One of the perpetual problems with park interpretive programs is that research issues have commonly reflected the needs of the staff rather than the needs of the visitors or the park management (Watson 1989:80). Interpretation is a powerful management partner, precisely because of its unique intersection between the resource, the visitor, and a park's management (Watson 1989:79).

The importance of involving the public in interpretation of cultural resources has been well documented (Lowenthal 2003; Shackel 2001; Shackel and Gadsby 2008; Waterton 2005). No formal outreach has been done for Tesla, but research by an advisory group at Carnegie SVRA revealed that many visitors were curious about the magnitude and importance of Carnegie in California's history (Buckingham, personal communication 2009). The biggest draw of the Tesla addition, as opposed to Carnegie's OHV opportunities, will be its history (Buckingham, personal communication 2009). In coordination with Ms. Jennifer Buckingham, Associate Park & Recreation Specialist, and Ms. Elise McFarland, an interpretive specialist hired in 2009, a draft visitor survey has been prepared (Appendix B).

While it was not possible to conduct a formal survey for this thesis, the prior research into visitor's interests indicates the importance of Tesla's history. As the interpretive plan is developed and Parks' ideas become more honed, continued outreach to visitors will need to take place. Once the interpretive plan is in place, a dialogue with the community will need to be repeated (ICOMOS

2007:12). This thesis presents just one theme for interpretation based upon the OHV visitor profile and the visitors' interest in history, but this plan is only a small part of what should be a continuing dialogue.

Common Pitfalls in Interpretation

Aside from the lack of visitor input, interpretation can also take two other forms: propaganda and a profitable product for tourists (Uzzell 1989:3-4). Uzzell argues that when interpretation veers into these realms, the goal is no longer for conservation purposes. The goal is to entertain (1989:4). The author goes on to provide a lengthy, but amusing, scenario for the interpretation of a coal mine:

> What about "The Miners' Experience"? You travel on these heritage coal trucks down a long dark tunnel passing scenes of the working lives of miners. Then you come to a coal face on which is shown a film about the decline of the coal industry. The last scene is a picture of the pithead, with that wheel-thingy not going round – just silence, except the Buggleswick Colliery Band playing "Jerusalem" in the background. Then the coal face wall slowly rises and the heritage coal trucks take you through into this real identical industrial scene of the present day [Uzzell 1989:5]

Uzzell's facetious attitude underlies his fear that interpretation is going to become nothing more than exploitation for tourist dollars. Cameron and Gatewood (2003:69) ask if people don't enjoy didactic displays, should education be wholly abandoned in favor of the emotional? Should the past be sanitized? Should interpreters opt for fun, for "Disneyfication"?

One real danger in interpreting the history of a resource to the public is losing the visitor's interest. People who are visiting parks for pleasure do not want to be taught in a classroom like setting. They may "anticipate learning" but want it to be interesting and entertaining (Cameron and Gatewood 2003:68). They want to hear the human, personal side of history, and they want this history tailored to their interests, not what professionals think they need (Cameron and Gatewood 2003:68; Waterton 2005:315, 318-320).

How, then, to interpret a landscape such as Tesla? How can the information be conveyed in an interesting, non-Disneyfied, thought-provoking, thoughtful way? It is already known that the OHV

riding visitors of Carnegie SVRA are interested in the history of the park. One way to help construct a personal sense of place for visitors is to create a self-guided interpretive walking tour (Markwell et al. 2004:460). One way to present thoughtful and interesting interpretation without romanticizing the past is to talk about the aspects of history that are difficult to consider. This doesn't necessarily mean the stories need to be "depressing stories about death and environmental degradation" but they can discuss conflict, division, and change, without neglecting positive stories of community and solidarity (Markwell et al. 2004:470).

Interpretation of Tesla as an Invisible Landscape

Landscapes are often easier to interpret than buildings because they are approachable public places and can be understood on a larger scale (Hayden 2000:IX). At Tesla, however, much of what can be interpreted is *not* readily visible to the visitor and the interpretation potential is not immediately obvious. The most noticeable features on the landscape – the waste rock piles – are immense, but perhaps not particularly compelling. The waste rock piles may, in fact, be initially identified by some visitors as a "natural" feature on the landscape, akin to a desert scene (Francaviglia 1991:143-144). It is these waste rock piles, however, that can be used to draw visitors in to the mining world at Tesla as clear evidence that activity on a massive scale once took place in the narrow confines of Corral Hollow.

Heritage and the interpretation of a cultural landscape is one way to create community and cultural continuity (Shackel 2001:662). The concept of the "view" is important in heritage landscapes and the interpretation of these landscapes (Francaviglia 2000:47). Heritage landscapes typically possess enough design integrity to convey the past. Tesla's view may not show a preserved past, but the viewshed still conveys a sense of the past.

Many of the significant and interpretable aspects of Corral Hollow are invisible. The remaining cultural resources are archaeological – underground and inaccessible to the public. The stories that can be told about Corral Hollow – and the data potential held in the archaeological

resources – are about people who have historically been treated as “invisible” or unimportant in the past. Industrial landscapes have also been historically devalued as ugly, even shameful parts of our past best left in the past. Furthermore, like most mining sites, the most intact portion of the landscape – the mine – is underground.

The following section will utilize Corral Hollow’s historical context and the descriptions of the physical landscape of Corral Hollow to interpret the area as three interrelated, invisible cultural landscapes: the industrial/working landscape, the underground landscape, and the working class landscape.

An Industrial Landscape

Essential in understanding the mining landscape is the acknowledgment that the landscape has primarily been created by the application of technology to solving the problem of extracting minerals from the ground (Francaviglia 1991:xvii). The most visible, apparent characteristic of Corral Hollow is its industrial history. The enormous waste rock pile on the canyon floor is a clear indicator of its history and immediately conveys a sense of the amount of work required to create it (Figure VIII).

Figure VIII. Photograph of the waste rock piles (Photo: Kate Erickson)

When the landscape was first industrialized by the early coal mining companies, these small-scale entrepreneurs altered the landscape in correspondingly small-scale ways and lived in communities that were less structured and, probably, more egalitarian (Van Bueren 2002:3). The success of these settlements ebbed and flowed, with each becoming increasingly organized. By the 1890s, the landscape of Corral Hollow was dominated by a large-scale corporation with an interest in formally arranging its appearance (Van Bueren 2002a:3). Industrialized places like Tesla were composed of structures built for specific purposes. The picking plant could only be used as a picking plant, the washing plant could only be used as a washing plant, and so on. Not only were these activities specialized for a single place, but worker's jobs became increasingly specialized during this period as well. Time became more structured and specialized, with schedules based upon the clock and a lessening interaction of work and play (Groth 2002). These organizational changes to the physical landscape from mining camps into towns would not have been feasible without increasing

rates of investment by big city corporate investors. The increasingly regularized operation of mining towns were reflective of moneyed interests' concerns with setting a "clear tone of discipline and conformity" (Van Bueren 2002b:35).

Visually, coal mining landscapes were characteristically "dirty, dusty, and gray, lacking vegetation and color" (Metheny 2007:220). The mine workings would have been visible for all of the residents and while the company had an interest in keeping their workers comfortable enough, addition of parks and other greenspace may not have been a priority (Metheny 2007:220).

An Underground Landscape

One of the defining characteristics of a mining landscape is the "iceberg-like" nature of most of the cultural remains (Hardesty 1990:48). The site's reason for being – the geological resources and the vast underground workings – are almost completely invisible on the surface. Wooden-framed mine portals, collapsing tunnels and airshafts, surface scrapes, and the extruded waste rock are the only surface indicators of the extensive remains underground (Figure IX). Historically, though, we have some idea about what went on underground. The mining techniques at Tesla are known and there is ample documentation about the safety problems and other subsurface conditions at Tesla.

Figure IX. Photograph of a mine portal (Photo: Kate Erickson)

Besides the physical activity of mining, there are also the social dynamics that took place underground. The company controlled the underground landscape, including how it was worked and where it was expanded. However, even as the landscape became increasingly the manager's purview, the miners maintained a "mental map" of the underground landscape, and appropriated it as their own (Francaviglia 1991:20).

Underground workers at Tesla were never unionized, but workers may have been able to take safety precautions into his own hands, like working with someone he trusted and learning how to read warning signs underground (Metheny 2007:232). While underground, workers who spoke different languages had to develop a pidgin to communicate with one another (Trettin 1990:17). These workers could gain control of their situation by banding together against their bosses and refusing to let the boss play the middleman between them. Foremen and mine managers, meanwhile, had strong incentives to tightly control work practices underground. It was against their

economic interests to allow the workers to work at an informal pace, and it was dangerous to allow them to speak to one another unfettered (Trettin 1990:14).

Although the miners may have been able to make small adjustments to their lives underground, the company ultimately controlled the landscape of the mine. The mine is an integral part of the working class landscape, but it is realm under which workers are most subject to the company's control. Despite the physical invisibility of most of the mine workings, their presence can still convey a sense of the changing nature of life underground.

A Working Class Landscape

Cultural resource surveys have only recently begun to scratch at the surface of Tesla's material history (Newland 2008). Following Metheny's study of the coal mining company town of Helvetia in Western Pennsylvania (2007), the working class landscape of Corral Hollow will be revealed through photographs and other primary documents and through large-scale cultural remains like building pads and neighborhood plans.

While the underground landscape was primarily under the control of the company, as was the layout of the industrial landscape, the town, the mine, and the homes can still be considered part of both a working class landscape and a realm of interaction between different classes of residents, workers, and management.

Despite the dull redundancy of housing in a company town – "an unmistakable representation of corporate control" – individuals and families who lived in these houses made them their own in ways that are visible in the archival and archaeological record (Metheny 2007:179; *OT* 31 January, 1901). The typical miner's house at Tesla was a 14-foot by 17-foot four-room cabin with two bedrooms, a parlor, and a kitchen (Hartung 2001). These houses were apparently roughly finished, with oilcloth used to separate some of the rooms (Meyners 1975b). Some had small stoops in the front. Privies were shared in each neighborhood, although Treadwell Row may have had sanitary

toilets (Meyners 1975a). Houses along Treadwell Row had flats carved into the hillslope and, in at least one instance, stacked rock retaining walls in the backyard.

During the nineteenth century, “workers could afford few of the products of their labor and maintained very low levels of consumption, especially of durable goods” (McGuire 1991:103, quoted in Metheny 2007:198). Metheny’s study of early twentieth-century Helvetia showed a marked contrast to McGuire’s assessment of the level of comfort in worker housing (2007:198). These radically divergent views may be borne from analyses of different populations (e.g., more transitory versus more stable) or different segments of the same population (e.g., boarding house residents versus those living in single-family homes). Metheny argues (2007:198) that what little disposable income workers were able to accrue would be spent altering the home to make it a more comfortable place instead of on “luxurious” portable goods.

In January of 1901, the *Oakland Tribune* noted that Arthur Duncan built an addition to his home in Jimtown (31 January 1901). Other home modifications are visible in historic photographs of Tesla. In one photo of a house in Jimtown, the McGee family had planted an elaborate flower garden and installed a fence around the yard (Figure X; Mosier and Williams 2002:170). While Tesla’s workers may have had little choice in where they could live and the housing was monotonous, they clearly had the ability to modify their homes as they saw fit and the company apparently did not discourage these activities. This suggests that the residents had the ability to negotiate their position in town, contrary to the typical view of company town life.

The few small changes that took place at Tesla appear similar to what Metheny saw at Helvetia, but differ significantly from earlier studies of company towns (Corbin 1981, DiCiccio 1996, and Mulrooney 1989, quoted in Metheny 2007:211). These studies concluded that workers would either not have the economic means to modify their homes, or they would be reluctant to do so because of the inherent instability of the company-worker relationship in industrial towns. This suggests that the company’s intention of acquiring families who planned to remain in Tesla for a

lengthy period of time was successful. It also indicates that the workers who lived in the town intended to make the place their home, even though they could not own their own property. The initiative to beautify the landscape was clearly on the part of the workers (Metheny 2007:222). Metheny suggests that this creation of a sense of place made the company town more stable (2007:233). According to Dan Mosier's research, some individuals stayed in town for many years. The Donahues, for example, lived in Jimtown for 10 years and Pat Meehan, a miner who had many relatives in town, lived in the same house for 12 years.

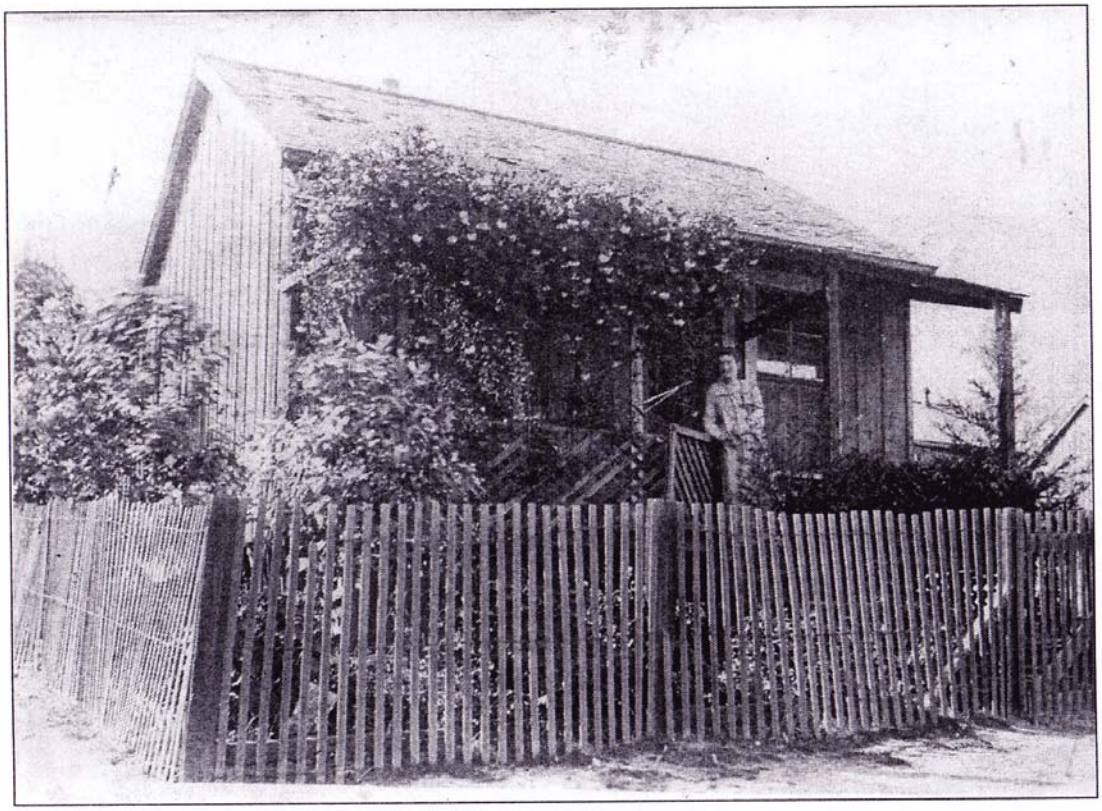

Figure X. Modifications to the McGee home in Jimtown (Mosier and Williams 2002:170)

One of the problems with defining Tesla as a “working class landscape” is that this landscape was likely perceived quite differently by different members of the working class. This “multilocality” imbues a single landscape with multiple meanings (Metheny 2007:206). Although mining has traditionally been “man’s work” and the underground landscape of Tesla was created by and for men, the landscape of the town represented more varied experiences (Francaviglia 1991:xix). Landscapes anywhere are different based upon gender-specific experiences, perceptions, and abilities to change the landscape (Melnick 2000:23). In the coal mining company town of Ludlow, Colorado, archaeologists argued that while working class women shared a common experience of a difficult life in the home, ethnic differences among the women divided them (McGuire and Reckner 2002:51). Metheny argues that these ethnic and social divides would have been bridged in social spaces, such as the baseball field or, in the ultimate symbol of corporate control, the company store (Figure XI; Metheny 2007:227). The question becomes, would people feel comfortable enough to socialize freely in places where company management could overhear? Or would they prefer to socialize within their own networks, in their own homes?

The home was an important place in a worker’s life and was the central stage from which people could carve out their own niche in an explicitly controlled landscape (Metheny 2007:234). A person’s “home” likely extended beyond their physical dwelling, to the homes of extended family or even their church or social group. At Tesla, only a small fraction of households (11 out of 132) housed extended families, but marriages happened frequently in town and people who were already employed by the company often encouraged their relatives to join them (Mosier and Williams 2002:342-343; U.S Federal Census 1900). Family was an important part of getting a job at the mines (Metheny 2007:234). Family was also an important security net once the mines employed a worker. The danger of the mines was a constant (Aldrich 1995:483) and families were important for “coping with the emotional stress and anxieties associated with the hazards of the mining industry and the constant threat of injury, disability, death, and loss of income” (Metheny 2007:236).

Figure XI. Photograph of Tesla baseball player Albert Dieu (OHV Headquarters files, Sacramento)

The level of community fostered within the town is another aspect of the landscape that was viewed differently by different residents. A “community” consists of a group of people living in the same place, interacting on a daily basis, and operating under a system of shared understanding (Van Bueren 2002a:1). In Ludlow, it was found that the similarities in the day to day lives of the miners’ families undercut the ethnic and cultural differences within the community and these shared experiences gave the residents a basis upon which to resist the mine management (McGuire and Reckner 2002:51). However, at Tesla not all of the residents of the town were there for the long term and hostilities between groups of people have been documented (Mosier and Williams 2002:167). Disputes could occur between classes and within classes, as well (McGuire and Reckner 2002:46, 49). Trettin argues that “subcultures of opposition are fragile,” and while workers would band together against their supervisors, they would also implicate one another if it suited their purposes (1990:27).

While the assignment of housing was clearly based upon racist principles for Asian and African American workers, the practice for other workers is less clear. In Helvetia, census records indicate that housing assignments were determined on the basis of availability or a lottery (Metheny 2007:226). The residential pattern at Tesla is unclear. Ethnic, cultural, and economic boundaries were not only drawn by the company, but by the residents as well. Churches and social groups would encourage and maintain segregated social and ethnic networks in the community (Metheny 2007:175). Like Tesla, a few other company towns, primarily logging towns in the Pacific Northwest, have documented settlements of segregated Chinese and Japanese workers (Dubrow 2000:144). These men, and sometimes families, would be housed together in the same bunkhouse, but were segregated to separate parts of the house and ate at separate tables in the same dining room. Although these employees were as dependent upon the company store as others, they also frequently relied upon peddlers from the nearest sizable city who sold them traditional foods, including fresh vegetables and seafood not provided by the company (Dubrow 2000:146).

Aside from the officially built neighborhoods of Frytown, Jimtown, Treadwell Row, and Harrietville, there were also “unofficial” neighborhoods of tent cities, of Chinatown, and the community of Harris. The further back in time we go, the less landscape evidence there is of cheap, impermanent buildings (Holdsworth 1997:49). Were it not for the historical photographs of Tesla or interviews with former residents (Meyners 1975a), the location of the Chinese servants’ housing would probably be unknown. While reconstructed plans (Hartung 2001:22) and census information is available for the official neighborhoods, little is known about these more temporary places.

The ways in which workers negotiated space within the town indicates that the residents were able to make the landscape “their own,” despite the top down imposition of the town’s structure and the company’s rules. Some have argued that supplying housing to workers was one means for the company to keep an eye on employees (Shackel 2000:109). However, these homes were also the part of the landscape where workers were most able to form a home and community.

Sharing this History

One of the most popular interpretive themes in industrial landscapes is the role of the worker and, by extension, the role of the family (La Lone et al. 2000). By highlighting the role of the individual, the large scale of the industrial landscape in rendered more manageable and the seemingly invisible human scale of the landscape becomes visible. The history of the worker on the rural historic landscape of Corral Hollow can be shared through kiosks and brochures. The everyday belongings of these individuals, invisible in their archaeological contexts, may also be shared in a visitor's center (Buckingham, personal communication 2009).

Tesla's history and the ways these three invisible landscapes convey this history to present-day visitors can be interpreted using "interpretive triggers" on the landscape (Markwell et al. 2004:460). Each of these three subthemes (industrial landscape, underground landscape, and working class landscape) has a trigger that can be identified along a self-guided walking trail. The largest cultural feature on the landscape is the tailings pile, which can be used to explain the industrial landscape of Tesla. Next, visitors can see the remaining portals to the mine, where they can learn about the mine itself and the workers who toiled there. Finally, visitors can see where people lived in the town, particularly Jimtown, Frytown, and Treadwell Row. While little can be seen of these neighborhoods today, they are visible in the numerous historic photographs of the town that are available (Figure XII). Imagic reconstruction may also be used for each of these other landscapes so visitors can compare the invisible past with highly visible images from the era. The only physical remains of the houses in the other neighborhoods are depressions marking the location of their collapsed cellars.

A landscape does not need to be visible to be interpreted. The imagination is a powerful force in interpretation, regardless of the subject matter. "Imagically preserved landscapes" consist of landscapes interpreted and preserved through photographs and scale miniatures (Francaviglia 2000:65). This type of heritage preservation is especially useful where complete reconstruction of a

landscape is not possible or desirable. By depicting the landscape of Corral Hollow as it was, the historic properties that remain would be left intact while also preserving the present-day viewscape.

Figure XII. Photograph of Fry Flat (Photo: author)

Conclusions

The landscapes of Corral Hollow are primarily invisible, either physically – the mine – or conceptually – the industrial and working past. The challenge with these landscapes is how to make them visible to the visiting public. While Tesla is officially part of Carnegie SVRA, it may be that this portion of the park will not be open to OHV riders or will only be open for guided ATV tours due to the sensitive nature of the resources. Previous research into the preferences of current Carnegie visitors reveals that they are interested in the history of the park. By providing a series of invisible

landscapes that can be made visible to the visiting public through triggers on the landscape, this history can be made visible.

Because Tesla is part of an SVRA, the OHV-riding public will be an important constituency in the interpretive process, even if the park is not fully opened to them. The highlighting of the park's working class past and present may allow the riders to become part of a social community with this past through a shared experience with the landscape. By reaching out to the expected clientele in a new way, Parks may be able to fulfill its management goals and simultaneously promote the idea that all of the parks are available to any visitor.

This chapter presented an overview of how similar landscapes are interpreted in other parks, followed by a management plan and these thematic suggestions for interpretation in the park. The following chapter will describe how this interpretative plan fits in with California State Parks' stewardship program, followed by a discussion of "what's next?" for the park.

Chapter VI. Conclusions

Introduction

The Tesla addition of Carnegie SVRA contains large and complex industrial and domestic archaeological sites that are intimately intertwined in both time and space. These sites include the remains of the SF & SJ Coal Co.'s mine and the associated company town of Tesla, which are contained within the potentially significant rural historic landscape of the Corral Hollow Mining District. The intent of this thesis is to provide the historical background of the landscape, to assess Corral Hollow as a rural historic landscape, and to provide interpretive themes California State Parks can use to make this landscape "visible" to the visiting public. The main interpretive theme identified by this thesis is "Tesla as an Invisible Landscape". Subthemes include the industrial landscape, the working class landscape, and the underground landscape.

The Tesla addition to Carnegie SVRA presents a unique challenge because, as an off-highway vehicle (OHV) park, the potentially significant cultural resources located within its borders are not the reason the park was created. Parks staff, however, is interested in developing Tesla's interpretive potential (Buckingham, personal communication 2009). The interpretive themes presented in this thesis may be used as a management tool by Parks to protect the resources from errant visitors and to lead to an appreciation and understanding of the cultural landscape (O'Riordan, Shadrake, and Wood 1989:180). Parks nationwide are seeing record attendance (*Orange County Register* 2009), both as a result of the economic downturn and the parks tentative steps toward reaching out to historically underserved communities, including urban residents, members of the working class, and minorities (Fimrite 2009:A1).

Recommendations

Treatment of the Landscape through Interpretation

The treatment of a cultural landscape must take into account a multitude of factors. What is the vision of the park? Is it safe to preserve landscape components such as mine portals or waste

rock piles? How much money does the park have to invest in the landscape? How will it be interpreted? Should it be left as is? Should the historic structures be rebuilt?

The National Park Service proposes four different treatment options for cultural landscapes: preservation, rehabilitation, restoration, and reconstruction (Birnbaum 1994). Because of current state budgetary concerns, the first option seems the most viable. The first option will also provide the highest level of protection for the archaeological landscape contained underground. However, despite these budgetary concerns, the landscape will need to be interpreted to the public in order for Parks to meet its management goals.

Imagic reconstruction, consisting of placards depicting Corral Hollow at significant points in its history, would convey the past to the visitors, preserve the archaeological sites, and maintain the present-day viewshed of the canyon. Kiosks and brochures are also more affordable means of interpretation than ranger-led tours (Ward and Wilkinson 2003:1-15). Furthermore, self-guided tours allow the visitor to find a personal sense of place within a landscape because, by its nature, a landscape can tell a multitude of stories (Markwell et al. 2004:460). Kiosks can be set up in view of the triggers on the landscape that make the invisible at Tesla visible. Brochures can also be used to show where these places are in the park so visitors can find them and choose what parts of the landscape are important for them to experience.

Integration with Natural Landscapes

Although it is well beyond the scope of this thesis, the natural environment must be discussed as part of the physical landscape of Tesla. Cultural landscapes differ from other cultural resources, such as archaeological sites or historic buildings, because they are intimately linked with the natural world around them (Birnbaum 1994). The landscape of Corral Hollow would not have developed as it did were it not for its natural resources of coal and grazing land. Any interpretive plan implemented by Parks would need to discuss the role of the natural environment in the settlement of Corral Hollow and the responses of each of the groups who used the land.

Continuing the Interpretive Process

Before Parks begins to put an official interpretive plan in place, visitors and the neighboring communities will need to be consulted. This process does not end with the completion of an interpretive plan. Continuing research and consulting are equally important as the original consultation (ICOMOS 2007:12) and a connection needs to be forged between the community and its heritage. Because there is not a sizeable descendent community – mining was a transient business and many workers moved on after the mines closed – but a social community may exist with the present day users of Carnegie SVRA.

Stewardship

Stewardship, or the personal responsibility of taking care of another, has long been a proactive tool of park managers to protect resources within park boundaries and California States Parks has codified this management goal into a formal program. The California State Parks Stewardship Program, or CASSP, is a program where "trained volunteers work with professional archaeologists to protect archaeological and historical resources by regularly visiting sites and recording changes" (CASSP 2009). These volunteers attend a training session at a park within the Parks system and then are given the responsibility of monitoring archaeological sites in their "home" park. Carnegie SVRA is an integral part of this program and the next volunteer training session, scheduled for the winter of 2009-2010, will be held at Carnegie (CASSP 2009).

The California State Parks system has undergone severe budget cuts in recent years, with the state government repeatedly threatening to shut down parks or to cut services (Rubenstein 2009:A25A). Parks are left vulnerable to vandalism when they are understaffed or closed completely and irreplaceable cultural resources could be easily lost. With the CASSP program, Parks staff are able to share responsibility of protecting our communal heritage with trained volunteers. Some of the more remote sites in Corral Hollow have been looted over the years. With the creation of the park, in conjunction with regular monitoring by CASSP volunteers, these resources may have a better chance

of being preserved. By reaching out to the OHV riding public, another group of valuable allies may be gained.

What's Next?

When this research project began, Parks did not have an interpretive specialist assigned to Carnegie SVRA. As of the summer of 2009, an interpreter has been hired and the interpretive potential of Tesla is being integrated into the park's General Plan update (Buckingham, personal communication 2009). The intent of this thesis is to provide interpretive themes that may be utilized as part of the interpretive process for Parks.

APPENDIX

Appendix A: Landscape Assessment of Corral Hollow

Introduction

The landscape of Corral Hollow is a dynamic, evolving entity, one that has morphed from a Native American resource procurement and possible spiritual landscape, to a Euro-American ranching landscape, to a small-scale mining landscape, to a large-scale corporate mining landscape, and then back to a small-scale mining and ranching landscape. Corral Hollow continues to be ranched following its purchase by California State Parks. Parks will turn Corral Hollow into an interpreted recreational landscape open to the public. This chapter will present an assessment of Corral Hollow as a rural historic landscape following National Register of Historic Places (National Register) guidelines. This assessment will guide the interpretive design.

The National Register

Any historic properties under federal jurisdiction, including National Park landscapes, are documented and evaluated using criteria set forth under Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA). The National Register of Historic Places is the official list of properties recognized by the Secretary of the Interior to be significant under the NHPA (McClelland et al. 1999; NPS 1997). Historic sites or districts can be eligible to the National Register as rural historic landscapes or designed landscapes (McClelland et al. 1999). A designed landscape is, as the name implies, a landscape that has been designed following academic or artistic standards (McClelland et al. 1999:2).

A rural historic landscape is defined as “a geographical area that has been used by people, or shaped or modified by human activity, occupancy, or intervention, and that possesses a significant concentration, linkage, or continuity of areas of land use, vegetation, buildings and structures, roads and waterways, and natural features” (McClelland et al. 1999:1-2). Industrial landscapes are classified as rural historic landscapes (McClelland et al. 1999:3; Noble and Spude 1997:13-14).

Rural landscapes reflect the day-to-day activities of their inhabitants and modifications over time are taken as a given.

The eligibility of these landscapes for nomination to the National Register is assessed using two standards: significance and integrity. The significance of a property, under National Register parlance, is assessed using specific criteria and how this property compares to others locally, statewide, or nationwide (McClelland et al. 1999:2). These National Register specific criteria are: Criterion A, association with events that have contributed to broad patterns of our history; Criterion B, association with the lives of persons important in our past; Criterion C, embodies distinctive characteristics of a time, period, or method of construction, or possesses high artistic values, or represents a significant or distinguishable entity whose components may lack individual distinction; and Criterion D, have yielded or are likely to yield information important to history or prehistory.

Without a written historic context for any potentially significant historic property, these criteria cannot be met and the property's potential significance cannot be assessed. Historic contexts provide background information about a site and a region, list areas of significance (e.g., Industry), and explain themes under which a landscape may be considered significant (e.g., Coal Mining in California) (McClelland et al. 1999:2, 20-21). Significance must also be assessed based upon a "period of significance," or length of time when a landscape attained its local, state, or national importance.

Once a landscape has been determined to be potentially significant, its historic integrity must be assessed. A landscape may have significance within a specific historic context, but if it is no longer able to convey this significance, it is determined to be lacking in integrity. Integrity in a landscape is measured by its spatial organization, its concentration of historic characteristics, and evidence of its historic period of development that distinguishes it from its surroundings (McClelland et al. 1999:2). These characteristics are then assessed under the National Register Qualities of Integrity: location, design, setting, materials, workmanship, feeling, and association. The integrity of

most of these qualities can be answered by relatively straightforward questions. Has the location changed? The design? Are the original materials intact? Has the setting been altered significantly over time? Is the workmanship that was needed to create the landscape evident? Can the landscape be directly associated with the persons who built it or the time when it was important? Feeling, one of the more intangible qualities, addresses the cumulative impact each of the other qualities of integrity retains on a landscape, allowing it to “evoke” and “reflect” the historic scene (McClelland et al. 1999:23).

Following all of these assessments, a number of other factors need to be considered before a landscape can be nominated to the National Register. Once the researcher has a better understanding of the landscape, certain landscape elements can be included or left out (i.e., deemed “contributing” or “non-contributing”) of the list of significant resources. Then, a boundary that encompasses all of the contributing elements to the nomination is drawn.

The Federal guidelines for assessing landscapes for management purposes are quite explicit, but they also leave significant room for flexibility of interpretation. Contradictions may arise when a certain landscape, like Tesla, may be understood not only as a rural historic landscape, but also as an archaeological landscape, as well as an industrial landscape. Different criteria need to be met for each of these landscapes and the qualities of integrity are met in different ways.

Industrial landscapes may also be evaluated using National Register Bulletin 42, *Guidelines for Identifying, Evaluating, and Registering Historic Mining Properties* (Noble and Spude 1997). This bulletin specifically discusses the industrial components of mining landscapes: the mines, the mills, and the archaeological remains left behind. The evaluation of mining landscapes under the National Register is complicated by the cyclical boom and bust patterns of the industry, the rapidly evolving technological shifts that took place, and the changes in the types of ores being mined which resulted in differing landscape changes (Noble and Spude 1997:3). The methods of researching and

evaluating the significance of mining properties are similar to those used in assessing rural historic landscapes.

Coal mining property types are typically classified into two types: prospecting/mine exploration and exploitation/mine development (Noble and Spude 1997:10-11). The first type, associated with the early phases of a mine's development, can often be obscured by properties associated with the second type, which are typically on a much larger scale. The level of required integrity is slightly different, however, because many mining sites are severely degraded or destroyed. Even if structures and the railroad lines have been removed, tailings piles, trash heaps, and roads remain and may contribute to a mining property's integrity (Noble and Spude 1997:4,19).

No matter the rubric under which a landscape is assessed, the end result should remain the same. These landscapes are studied as monuments to an evolving culture (or cultures), writ large. Ultimately, this information is used to provide a baseline of information that is used to manage the landscape. This management, ideally, will involve an interpretive plan (Groth 1997:10; ICOMOS 2007; Markwell et al. 2004). The California State Parks system uses a similar means of assessing landscapes, which is discussed below.

Any historic properties under federal jurisdiction, including National Park landscapes, are documented and evaluated using criteria set forth under Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA). The National Register is the official list of properties recognized by the Secretary of the Interior to be significant under the NHPA (McClelland et al. 1999; NPS 1997). Industrial landscapes can be eligible to the National Register as rural historic landscapes (McClelland et al. 1999). A rural historic landscape is defined as "a geographical area that has been used by people, or shaped or modified by human activity, occupancy, or intervention, and that possesses a significant concentration, linkage, or continuity of areas of land use, vegetation, buildings and structures, roads and waterways, and natural features" (McClelland et al. 1999:1-2). Rural landscapes reflect the day-to-day activities of their inhabitants and modifications over time are taken

as a given. Landscapes in the California State Park system are assessed as districts following National Register guidelines (OHP 1995:9).

The landscape of Corral Hollow will also be evaluated using National Register Bulletin 42, *Guidelines for Identifying, Evaluating, and Registering Historic Mining Properties* (Noble and Spude 1997). This bulletin specifically discusses the industrial portions of mining landscapes – the mines, the mills, and the archaeological remains left behind. The evaluation of mining landscapes is often complicated by the cyclical boom and bust patterns of the industry and the rapidly evolving technological shifts and changes in the types of ores being mined (Noble and Spude 1997:3). Because many mining sites are severely degraded or destroyed they pose difficult integrity questions, but even if structures and the railroad lines have been removed, tailings piles, trash heaps, and roads remain, contributing to the eligibility of a property (Noble and Spude 1997:4,19).

Rural historic landscapes can be examined in eleven different categories: land uses and activities; patterns of spatial organization; responses to the natural environment; cultural traditions; circulation networks; boundary demarcation; vegetation related to land use; buildings, structures, and objects; clusters; archaeological sites; and small-scale elements (McClelland et al. 1999:3). The landscape elements applicable to Corral Hollow and discussed below are: land uses and activities, patterns of spatial organization, response to the natural environment, circulation networks, vegetation related to land use, and archaeological sites.

Landscape Elements

Land Uses and Activities

The landscape of Corral Hollow was originally inhabited by Native Americans, possibly as early as 7,000 years ago (Rosenthal et al. 2007:150). Corral Hollow was likely used for resource procurement, as evidenced by the types of archaeological sites left behind. The presence of rock art indicates it may have also been a spiritual landscape. During ethnographic times, the canyon was on the border between two neighboring groups – the Ohlone and the Northern Valley Yokuts – and may

have only been used only seasonally for ceremonial purposes and resource procurement. The resource procurement locations, such as the places where specific plants grew, were likely important features on the landscape, but their use was ephemeral and no visible trace has been left on the landscape. The extant archaeological sites are the only landscape features from this period of Corral Hollow's history.

Corral Hollow was intermittently visited during the Spanish and Early American periods. The nearby route of the Anza Trail was used by Spanish and American travelers, but the first permanent settlement in Corral Hollow was not established until late 1846, when a tent camp was set up at the mouth of the canyon. The first American residents of the western portion of Corral Hollow canyon were John and Margaret O'Brien, who operated a sheep ranch beginning in 1852 (Mosier 2003b:8). These ranchers built stone dams along the creek, excavated a well, and established paths that would be used by later inhabitants of the canyon. Corral Hollow was primarily used for small-scale ranching until railroad surveyors identified coal in the canyon. The ranchers then invested in mining and, later, sold off their mineral rights to developers.

A total of four small mines operated in Corral Hollow following the discovery of coal in the 1850s. The owners of the Pacific Mine opened five separate tunnels, shafts, and adits to access the coal (Mosier 2003b:Figure 13). The Eureka Mine expanded these same workings in the 1860s (Mosier 2003b:Figure 15), including the addition another tunnel. The owners of these early mines opened numerous mine shafts and adits along the productive coal seams in the canyon, some of which are still visible on the landscape today as depressions in the ground or open portals. Many of these early prospects and underground access points were reused by the SF & SJ Coal Co. in the late nineteenth century. The companies shipped their product by wagon road to Stockton. These early coal companies constructed bunkhouses along Corral Hollow Creek for their workers. Other facilities or paths in town that may have existed are unknown.

Many of the underground workings originally opened by the Pacific and Eureka mines were reopened by the SF & SJ Coal Co. and renamed in the 1890s. The mine portals were clustered in two ravines, Western Ravine and Old Tunnel Ravine, on the north side of Corral Hollow Creek (Mosier 2003b:25). The waste rock from the mine was removed by rail and was dumped off a wooden trestle onto the canyon floor below. The trestle is gone, but the enormous waste rock pile remains. Near the portal to Tunnel No. 3 in the Old Ravine were a number of mine buildings, including the electric plant, an office, a machine shop, and a blacksmith shop (Mosier 2003b:26). The portal for the main shaft was covered with a wooden house; nearby were the headframe and the hoisting plant (Mosier 2003b:27). These structures have all been removed. All of the coal excavated from the main shaft was taken by rail to the coal washing plant on the canyon floor. The coal washing plant was enormous; it was the first and the largest of its kind built in California (Mosier 2003b:28). Here, Japanese men hired as “pickers” removed the usable coal by hand, separating the coal from the waste rock; the rest of the coal was washed and screened. All of the usable coal was conveyed by rail from the coal washing plant to the coal bunkers. From there, the coal was loaded into train cars by coal chute and shipped to Stockton (Mosier 2003b:28-29).

All of the machinery in the mines was either powered by steam created in the boiler plant and condensers, which were located near the coal bunkers at the mouth of the Old Tunnel Ravine, or by electricity generated in the electric plant, also located in the ravine (Mosier 2003b:29). All that remains of these structures are foundations, remnants of building pads, and associated artifacts. The roads that led to the structures are intact and are currently in use by Parks’ staff.

While the main type of land use remained essentially the same through the latter half of the nineteenth century, the scale of did not. The SF & SJ Coal Co. operation reflected a major shift in both mining technique and scale. The SF & SJ Coal Co. also supported the large residential town of Tesla because they had to house far more employees than any of the other mining operations that had been located in Corral Hollow. The town had five separate neighborhoods, with 15 to 60 houses each, and a commercial downtown. Because Corral Hollow canyon is narrow, the residential and

industrial uses were clustered close together. They layout of the town is discussed in more detail in the “Patterns of Spatial Organization” section below.

After mining ceased in the Tesla mines, the property was sold off to cattle ranchers. Evidence of this period of Tesla’s history can be seen in the stock tanks in the middle of Bartnett Avenue and cattle trails in the hills. In the early twentieth century, a few small-scale sand and clay companies leased portions of the Tesla property from the ranchers for mining purposes. These mining companies left behind tailings piles, adits, and roads, primarily at the far northern boundary of the Park. The last of these twentieth century mines was closed in 1960 (Mosier 2003b:6).

Patterns of Spatial Organization

The patterns of spatial organization of the earliest settlements in Corral Hollow are mostly unknown. The locations of the archaeological sites are mapped, but their role in broader settlement patterns is uncertain. It is possible that the trails utilized by Spanish and Early American visitors were originally paths forged by Ohlone and Yokuts travelers who traversed Corral Hollow canyon during ethnographic times.

The first cattle ranch in Corral Hollow was situated along Corral Hollow Creek, in the location that would later become the Tesla downtown. The ranch buildings and the well were clustered in the same vicinity, but water containment structures were scattered along the creek and the feeder streams.

The early mining operations in Corral Hollow were not heavily financed and, as a result, they did not construct a large number of buildings or ancillary structures. Housing consisted of tents or bunkhouses which were built along the creek near the mines. As the mining companies became more capitalized, they became more organized. Tesla was a highly structured model company town, with land uses segregated and people separated into neighborhoods according to job and ethnicity.

The residential and commercial portions of Tesla were clustered to the southwest and southeast of the mine. The town was organized into a downtown and five official neighborhoods. The majority of stores were in the downtown, aside from the company store, which was located in Treadwell Row on Bartnett Avenue. The downtown will be discussed first, followed by each of the neighborhoods.

The downtown, or Tesla Plaza, was located on a terrace on the south side of Corral Hollow Creek. The plaza was reached from the mine and most of the remainder of Tesla by a footbridge that traversed the creek at the end of the stage road. Structures on the plaza included six bunkhouses for the single men, a hotel, a saloon, a dance hall, a butcher shop, a bakery, the library, a barbershop, and the bandstand. Other small shops were located on the path, known as “Wall Street”, between Tesla Plaza and the neighborhood of Frytown, to the west of the plaza (Mosier and Williams 2002:98).

Frytown was also located on the terrace on the south side of Corral Hollow Creek. Residents of Frytown were primarily Euro-American, African American, or European and were employed in a variety of skilled and non-skilled underground positions (Mosier and Williams 2002:98). The neighborhood was made up of 25 individual homes constructed in 1898. The homes were built in five close rows separated by very narrow streets. A row of houses was also built fronting Corral Hollow Creek. There were several communal privies located behind the rows of houses. Frytown was protected from the strong winds that blow through the canyon, but as it a result, it would also get particularly hot on warm days. Directly behind Frytown is a steep hillslope that was known as the Hog’s Back (Mosier and Williams 2002:98).

Jimtown was a residential neighborhood located on the north side of Corral Hollow Creek, on a cliff overlooking Frytown. The residents of Jimtown were Euro-American and European and were employed in skilled, non-skilled, and managerial positions at the mine (Mosier and Williams 2002:97). Jimtown was made up of 32 individual homes, also constructed in 1898 (Mosier and Williams

2002:98). These houses were constructed in three long and narrow rows from the cliff to the edge of the hills to the north. The more prestigious homes, located higher up the hill, were said to be part of Nob Hill. A water tower was located on the hill, providing water to the neighborhood below. There were communal privies located behind the rows of houses. Jimtown was exposed to sun and wind, with little vegetation or tree cover.

Treadwell Row was located to the east of Jimtown, along the main road called Bartnett Avenue. Treadwell Row was made up of 17 houses constructed for the mine management, who were Euro-American and Canadian. These houses, larger than those located in any of the other neighborhoods, were built in 1897 (Mosier and Williams 2002:93). The building pads for some of these cottages were cut into the hillside and in some cases the ground was shored up with rock walls. The privies were directly behind the houses on the hill. Further up the hill, behind the privies, were small dwellings that likely housed the servants for Treadwell Row's residents (Meyners 1975a). The company store, the hospital, the mine office, and the post office were located at the very end of Treadwell Row, where Bartnett Avenue intersected the stage road to Livermore.

On the south side of Corral Hollow Creek, across from the main mine buildings and against the hillside, was the Asian American and African American neighborhood. This neighborhood was known as Chinatown when Chinese and Japanese residents lived here, and Darktown when it was inhabited by African American workers. The African American residents of Darktown, largely from the South, were employed as miners, laborers, and drivers (Mosier and Williams 2002:100). The Chinese and Japanese residents worked as laborers, as well as slate pickers, cooks, laundrymen, porters, and cooks (Mosier and Williams 2002:100). This neighborhood was just to the east of Tesla Plaza and was officially comprised of only four houses and a bunkhouse. A laundry and possible gambling hall was located in the easternmost house. The livery stable, not associated by Tesla residents as part of Darktown/Chinatown, and another grouping of unidentified houses were located on the north side of the creek from the main Darktown/Chinatown neighborhood. There is comparatively little information known about this neighborhood, such as when the houses were

constructed. It is unknown if the houses were similar to those in the other neighborhoods or were built independently. In photographs of Darktown/Chinatown, the houses do not resemble those built by the company.

Harrietville was the largest residential neighborhood in Tesla; it was also the most diverse. Residents were Euro-American, African American, European, Canadian, Australian, and Chinese (Mosier and Williams 2002:100). They were also employed in the widest variety of jobs, including butchers and dairymen, nurses, and skilled and non-skilled underground positions. The neighborhood was built in 1899 to house the increasing number of families who were moving to the mines (Mosier and Williams 2002:98). Harrietville had 45 four- and six-room houses arranged in narrow rows on the south side of Corral Hollow Creek. Unlike the other neighborhoods, Harrietville houses were not identical. The smaller houses up the hill, built for single men, did not have running water. The larger houses located along the creek, built for families, had yards, fences, and running water. The row of larger houses was derisively known as Silk Stocking Row by the single men living in the neighborhood (Mosier and Williams 2002:98-100). The school, dairy, stockyard, and slaughterhouse were also located in Harrietville.

At least two clusters of dwellings were located outside the official boundaries of these residential neighborhoods. These dwellings were temporary tents and shacks located in close proximity to other neighborhoods. A small tent community was located on Fry's Flat between the Tesla Plaza and Frytown. A second cluster of tents was located in Jimtown, on a flat next to the creek. It is possible that other unofficial houses or neighborhoods existed around Tesla, including some associated with Darktown/Chinatown. Some of Tesla's workers commuted from the town of Harrisville, located along the stage road to Livermore (Mosier 2003a).

The spatial organization of the mine and town of Tesla appear to have been built following the ideology of the model company town. Workers were segregated along occupational lines and social distance was enforced through geographic separation (Van Bueren 2002a:4). While it would

seem counterintuitive to have the managerial housing closest to the noisiest, most noxious part of the mine, these houses were located here so mine owners could have actual or implied oversight of the employees.

After the mines at Tesla closed, all of the buildings and structures were removed. All that remains today are depressions in the locations of the houses and privies and flats cut into the hillsides for houses. The spatial organization of the mines and town has not been impacted by the removal of the buildings.

Responses to the Natural Environment

The landscape of Corral Hollow has been used primarily for resource procurement from the time of Native American occupation until the present. Corral Hollow was located on the border between both Ohlone and Yokuts territory and was used by both groups for hunting and the gathering of resources. When the first American ranchers settled in the canyon, the grasses (native and introduced) that grew in the area were used to graze their cattle. Water was procured through a well located along Corral Hollow Creek.

The mining companies that operated within Corral Hollow also saw the environment as something to be exploited, although for different purposes. The natural environment provided some obstacles to larger scale settlement, including winter floods, summer droughts, and steep hillsides to traverse. As the scale of the mining operations grew along with their monetary investment, responses to the natural environment became more extreme. In the early years of the Tesla operation, the well dug by the original ranchers did not provide sufficient water for both the mine and the town. In response, water was shipped in by rail from Stockton. Buildings were constructed along a creek that flooded seasonally and the residential neighborhoods were laid out in grid patterns with no regard to the natural topography or the direction of the fierce westerly winds. The natural environment was treated as a creature to be conquered, if it was considered at all. The return to ranching brought the return of a landscape that was utilized for generally light resource procurement.

Circulation Networks

While it is known that the Ohlone and Yokut visited Corral Hollow during the ethnographic period, the paths they used to access the canyon are unknown. Spanish and Early American settlers used Corral Hollow as a passageway through the Diablo Range and in 1776, explorer Juan Bautista de Anza camped near Tesla. His route later became known as El Camino Viejo, which linked Oakland and Los Angeles. Access to the canyon from the north, south, and west has perennially been difficult and, prior to the SF & SJ Coal Co.'s construction of a railroad, shipping coal out of the canyon was a liability for the coal companies. Roads used within the canyon by the early mining companies were likely informal.

The two primary roads into Corral Hollow in the late nineteenth century were the stage road to Livermore, which headed northwest from Treadwell Row in Tesla, and the road east to Tracy. Secondary streets in Tesla were Bartnett Avenue, which fronted on Treadwell Row, and Wall Street, which led from Tesla Plaza to Frytown. None of these roads were ever paved. Tertiary roads, or paths, separated the rows of houses in each of the residential neighborhoods. Informal paths that are still visible on the landscape or are mentioned in oral histories led from Jimtown to Frytown, from Frytown over the Hog's Back, and from Treadwell Row to Jimtown, although others certainly existed.

The railroad was completed in 1897, allowing the SF & SJ Coal Co. to be the first Corral Hollow coal mine to be able to effectively ship its product. The railroad line extended from the depot, on Tesla Plaza, east nearly 37 miles to the town of Stockton. The rail terminus in Stockton was the site of the coalbunkers, where coal was stored before it was shipped. The railroad also carried workers from Harrietville east to the plants at Carnegie and Pottery. The railroad bed is still visible along the south side of Tesla Road, but the rails and ties were removed following the closure of the mines.

Vegetation Related to Land Use

Corral Hollow and the north side of the canyon are open prairie and are vegetated with native and non-native annual grasses. The steep hills on the south side of Corral Hollow Creek are vegetated with buckeyes and oaks. Trees in the riparian corridor along the creek include cottonwood and sycamore. Ohlone and Yokuts inhabitants collected native plants and processed some of these plants in the bedrock mortars located in the canyon. The grasses in the canyon were used for cattle grazing, both in the mid nineteenth century and from the mid twentieth century until today.

One of the defining characteristics of an industrial landscape is typically the lack of vegetation. The areas around the mines in Corral Hollow would have been stripped of most of their vegetation; the neighborhoods in Tesla were little better. A few trees existed on the hillslopes and along the creekbed, as well as on the edges of the neighborhoods. The residents planted some varieties of trees, including Trees of Heaven. Because trees were relatively scarce on the historic landscape, they are easily recognizable in period photographs and can be matched to trees living today.

Archaeological Sites

Today's landscape of Corral Hollow is primarily invisible and archaeological. Much of the evidence of earlier land uses are only present archaeologically. The Native American occupation of Corral Hollow is represented by a pecked curvilinear nucleated (PCN) petroglyph (CA-ALA-571), a rock shelter, and a series of bedrock mortars.

The earliest American phase has been lost to later development, but the mines have left numerous archaeological sites. These sites include house sites, other building sites, privies, trash scatters, mining portals, mine prospects and scrapes, roads, paths, and rock walls. The industrial and residential archaeological sites are primarily associated with the SF & SJ Coal Co., though a few from the earlier and later companies survive. Some of the archaeological sites have been lost through the widening of Bartnett Road, flooding, and looting.

Statement of Significance

The eligibility of landscapes for nomination to the National Register is assessed using two standards: significance and integrity. The significance of a property, under National Register parlance, is assessed using specific criteria and how the property compares to others locally, statewide, or nationwide (McClelland et al. 1999:2). These specific National Register Criteria are as follows:

- Criterion A, the association with events that have contributed to broad patterns of history.
- Criterion B, the association with the lives of persons important in our past.
- Criterion C, the embodiment of distinctive characteristics of a time, period, or method of construction, or possesses high artistic values, or represents a significant or distinguishable entity whose components may lack individual distinction.
- Criterion D, have yielded or are likely to yield information important to history or prehistory.

The landscape of Corral Hollow has previously been evaluated for significance. When an EIR was prepared for Carnegie SVRA's General Plan, Jones & Stokes evaluated the prehistoric and historic archaeological sites on the property. CA-ALA-571 was determined to be potentially eligible to the CRHR under Criterion 4 (its ability to yield information important in prehistory or history). The rock shelter and bedrock mortar were also determined to be potentially eligible to the CRHR under Criterion 4, and to the NRHP under Criterion D (also its ability to yield information important in prehistory or history). The small bedrock mortar site was determined to be ineligible (Jones & Stokes 2000:10-13).

Portions of each of the four historic resources associated with Tesla and the Treadwells (the owners of the mine and town) were determined to be potentially eligible to the NRHP under Criteria A (association with events that have made a significant contribution to the broad patterns of our history) and D as contributing elements to the Corral Hollow Mining District (Jones & Stokes 2000:10-12). The transportation system was determined to be a noncontributing element (Jones & Stokes 2000:10-

12). The Pen Daren Mine was determined to be potentially eligible for the purposes of the EIR, but its significance as part of the larger Livermore Mining District was not assessed (Jones & Stokes 2000:10-13). A recent reevaluation by the ASC suggests that the entirety of the mining complex – the mining portals, the towns, the industrial buildings, and the associated infrastructure – may be eligible as a historic district (Newland 2008:20-21).

The Corral Hollow Mining District may be eligible to the National Register as a rural historic landscape. A rural historic landscape has been shaped or modified by human activity and possesses a significant concentration of land use, vegetation, buildings and structures, roads and waterways, and natural features (McClelland et al. 1999:1-2). Although the buildings located in Corral Hollow have been removed, the modified landscape possesses a significant concentration of mining features that clearly show the heavy industrial use of the land in the past.

The Corral Hollow Mining District may be eligible to the National Register under Criterion D as a site likely to yield information important to history or prehistory. It may be eligible on both the local and the regional level as the location of the earliest commercial coal mine in California and the site of the largest coal producer in California from 1898 to 1905 (Mosier and Williams 2002:317). These two points in time reflect two potential periods of significance for the site: 1856 to 1890, the Corral Hollow Coal Mines; and 1890 to 1918, the Tesla Coal Mines. While the large-scale elements of the Tesla Coal Mines are the most visible, the “invisible,” or the archaeological portion of the landscape, contains the most potentially significant information about the industrial and the residential history of the district. The various components of the SF & SJ Coal Co. mine and the company town of Tesla were working contemporaneously, but they were also layered upon older Corral Hollow Coal Mines’ operations and settlements. These earlier mining operations were rendered invisible through the large-scale landscape alteration undertaken by the SF & SJ Coal Co. However, traces of these settlements remain as mining portals and portions may also remain in the locations of the early bunkhouses and tent camps. The documentary evidence for the former occupation is not substantial and while a large amount of written data exists for the later Tesla mines, very little of it sheds light on

the day to day lives of the workers. The archaeological data contained in the ground in Corral Hollow and the characteristic elements present on the landscape help convey the history of the potentially significant district. While some of the archaeological sites may be lacking in integrity, such as those in Jimtown that were destroyed during the widening of Bartnett Avenue or those that were looted, the overall grouping of archaeological sites within the district conveys its potential significance.

Once a landscape has been determined to be potentially significant, its historic integrity must be assessed. A landscape may have significance within a specific historic context, but if it is no longer able to convey this significance, it is determined to be lacking in integrity. Integrity in a landscape is measured by the National Register Qualities of Integrity: location, design, setting, materials, workmanship, feeling, and association. Feeling, one of the more intangible qualities, addresses the cumulative impact each of the other qualities of integrity retains on a landscape, allowing it to “evoke” and “reflect” the historic scene (McClelland et al. 1999:23).

As a primarily industrial, archaeological landscape, the quality of integrity of materials can no longer be applied to the historic property. The issue of integrity often poses serious problems in the nomination process for mining landscapes because many mining sites are severely degraded or destroyed. However, even if structures and the railroad lines have been removed, tailings piles, trash heaps, and roads remain and may contribute to a mining property’s integrity (Noble and Spude 1997:4,19).

Location is the place where the historic property was constructed or the place where the historic event occurred (NPS 1997:44). The location of the mines has not and cannot change, although the structures associated with the mine are not in their original location. The mines are located in their particular places on the landscape because of the subsurface geology and these same mines would not have taken the same form on the landscape in a different physical location.

Design is the combination of elements that create the form, plan, space, structure, and style of a property (NPS 1997:44). The quality of design may apply to archaeological sites and the ways in which they are spatially related among themselves and with the open space in between. Because the site of Tesla has been essentially undisturbed, the original spatial relationships between the mine and town sites or among the neighborhoods remain.

Setting is the physical environment of a historic property (NPS 1997:45). The setting of the Corral Hollow Mining District is very similar today to its appearance during the periods of significance. The topography of Corral Hollow remains the same as it was during the nineteenth century, as does much of the vegetation. Aside from the easternmost part of the parcel, near Harrietville, the modern road and traffic are not visible or audible. The paths and roads are also visible, although Barrett Avenue has been widened. Some of the archaeological sites along Bartnett Avenue have been lost, but the overall setting retains its integrity

Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory (NPS 1997:45). Workmanship in a mining landscape may include the underground portion of the mine, if accessible, or the visible portions of the mine timbering (Noble and Spude 1997:21). As the mines at Corral Hollow were partially destroyed during a fire and are inaccessible due to safety concerns, this quality does not contribute to the district's integrity.

Feeling is a property's expression of the aesthetic or historic sense of a particular period of time (NPS 1997:45). Historic mining landscapes often invoke a strong sense of feeling when viewed today (Noble and Spude 1997:21). While the structures associated with the mines are gone, the feeling of isolation the inhabitants would have felt within the canyon remains. The large piles of waste rock also convey the feeling of the industrial work that took place at the site.

Association is the direct link between an important historic event or person and a historic property (NPS 1997:45). Integrity of association in a mining landscape "will exist in cases where

mine structures, machinery, and other visible features remain to convey a strong sense of connectedness between mining properties and a contemporary observer's ability to discern the historical activity which occurred at the location" (Noble and Spude 1997:21). The most impressive visible feature on the landscape in the Corral Hollow Mining District is the large waste rock pile that is location on the canyon floor. This feature conveys the scale of mining that took place and also alerts the visitor to the type of activity that took place in that specific location. The landscape has clearly been industrialized and the association with the landscape features and the historical land use activity is still apparent.

The landscape of the Corral Hollow Mining District is primarily an industrialized mining landscape and most of the character-defining features are associated with the mines. Mining property types for coal mines include tunnels, adits, and shafts associated with the extraction of the coal; coal washing plants for the cleaning of the product; and railroads for shipping coal (Noble and Spude 1997:11). The tunnels, adits, and shafts are still visible on the landscape. The large waste rock pile present on the canyon floor is a remnant of the coal washing process (Mosier and Williams 2002:79). The railroad bed is still present, but the rails and ties have been removed. Nonetheless, the entirety of the coal-extraction process can still be seen on the Corral Hollow landscape.

A second character-defining element is the circulation network. The roads and paths that led from the mine to the town and the paths between the neighborhoods are still present on the landscape. These features provide a sense of continuity between the present and the habits of the residents in the past. A third character-defining element is the archaeological landscape. While the industrial past of Corral Hollow is overwhelmingly apparent, the residential past is not. This past is preserved in the circulation network and in the numerous archaeological sites in the neighborhoods and the downtown that may yield data significant to the history of Corral Hollow.

The individual properties associated with the Corral Hollow mines will need to be assessed before they are formally nominated as a rural historic district. Some of the archaeological sites have

been destroyed and some of the mine portals have collapsed, rendering them individually ineligible to the National Register. However, the grouping of archaeological sites associated with the industrial and residential land uses of Corral Hollow during the mid nineteenth century to early twentieth century may be able to achieve significance as a whole (NPS 1997:5).

While the Native American archaeological sites may be individually eligible to the National Register, they would not be contributing elements to the Corral Hollow Historic District because of their much earlier period of significance and the lack of historic continuity between the Native American period and the American mining period. The mid nineteenth and mid twentieth century ranching elements of the landscape depict a symmetrical land use activity around the mining period, but would likely not be contributing elements to the proposed district.

Conclusions

The physical landscape of Corral Hollow has been transformed in a dynamic way: from a Native American landscape, to a Euro-American ranching landscape, to a small-scale mining landscape, to a large-scale mining landscape, and then back to a small-scale mining and ranching landscape. Corral Hollow has been assessed in this appendix as a rural historic landscape, which may be eligible to the National Register. The identification of the landscape as possibly eligible to the National Register strengthens the importance of having it interpreted to the public. The specific reasons for which it may be significant can be used in the interpretive process, including decisions over which aspects to interpret imagically, which to potentially reconstruct, and which may not be pertinent to the overall interpretive program for the park.

APPENDIX

Appendix B: Potential Carnegie Survey Questions

Compiled by Elise McFarland, OHV Interpretation Specialist

1. Gender
   - o Male
   - o Female

2. Age Group
   - o 17 or under
   - o 18-29
   - o 30-39
   - o 40-49
   - o 50-59
   - o 60+

3. What is your zip code? _____

4. Approximately how many miles did you travel to get to Carnegie SVRA?
   - o 0-25
   - o 26-50
   - o 51-75
   - o 76-100
   - o More than 100

5. In the last 12 months, how many times (including today) have you visited this park?
1st time
   - o 2-10
   - o 11-20
   - o 21-30
   - o More than 30

6. What is the primary reason for your visit to Carnegie? (Choose only one).
   - o Ride dirtbikes
   - o Drive 4WD
   - o Ride ATVs
   - o Attend a race/special event

7. Do you most often visit the park:
   - o Alone
   - o With Friends
   - o With Family

8. What areas of the park do you most frequently use? (Choose as many as apply).
   - o 90 cc Track
   - o Valley Floor
   - o Hillclimbs
   - o ATV Track
   - o Store
   - o MX Track
   - o 4WD Obstacle Course

9. How satisfied are you with the overall condition of park riding areas?

- o Satisfied
- o No opinion
- o Not satisfied

10. How satisfied are you with the condition of the campground and/or day use area?
- o Satisfied
- o No opinion
- o Not satisfied

11. How satisfied are you with your overall experience at Carnegie SVRA?
- o Satisfied
- o No opinion
- o Not satisfied

12. On the map below, mark your favorite three riding areas with an “F”. Mark your least favorite riding areas with an “L”.

13. We are currently developing educational programs for our visitors. Please mark programs below that you would be interested in attending. (Choose as many as apply).
- o Campfire
- o Star Gazing
- o Jr. Rangers
- o Rider safety program for adults/kids
- o ATV Safety Institute Program
- o Basic OHV Mechanics
- o Guided Trail Ride
- o Trail Restoration Project
- o History Tour
- o Night Trail Ride
- o Park Orientation
- o Orienteering Ride
- o Rider First Aid
- o Wildflower Tour
- o Bird Walk
- o Kid’s Crafts
- o Geocaching

14. Which of the following educational materials have you seen/used at Carnegie SVRA? (Choose as many as apply).
- o Interpretive Panels
- o Flyers and brochures
- o Handout Maps
- o Coloring Book
- o Web Site
- o Newsletter

15. Which of the following potential special events appeal to you? (Choose as many as apply).
- o Career Day
- o OHV Equipment Show
- o Rider Appreciation Day
- o Rider Resource Fair
- o Park Clean-up and Restoration Day
- o Earth Day

16. Would you visit more often if the park offered more activities?

17. Would you visit a visitor center? ATV tours? Hiking trails?

18. Would you be interested in learning about the history of the park?

19. What parts of the park's history would you be interested in?
    - Mining/industry?
    - The miners? The miners' families?
    - Ranching?
    - The Native American history?

20. What parts of the park's natural history would you be interested in?
    - Plants/animals?
    - The geology?
    - Fossils?

21. Which kind of interpretive programs would you be interested in?
    - A self-guided tour?
    - Videos?
    - Audio?
    - A museum?
    - A ranger-led tour?
    - Interactive displays?

If you are interested in receiving updates about Carnegie SVRA and our newsletter, please write your e-mail address below.

What we want to know:

- Who are our visitors?
- From where do they come?
- Why do they come, and how often?
- What facilities/services do they use when they are here?
- What facilities/services would they like to have that we don't currently provide?
- Of what educational opportunities would our visitors be likely to avail themselves?
- Which aspects of the park do they like and dislike?
- Which trails do they enjoy and why? Which do they dislike and why? What makes a good or bad trail?
- Does the amount of use/traffic detract from their enjoyment?
- What are the characteristics of a "too busy" day?
- Is park staff helpful/available when needed? Are visitors satisfied with staff?
- Do we offer too many or too few special events?
- Do our visitors use other parks? Traditional as well as SVRAs?

References Cited

Alanen, Arnold R.
2000 Introduction: Why Cultural Landscape Preservation? In *Preserving Cultural Landscapes in America*, edited by Arnold R. Alanen and Robert Z. Melnick, pp. 1-21. Johns Hopkins University Press, Baltimore, Maryland.

Alanen, Arnold R., and Robert Z. Melnick (editors)
2000 *Preserving Cultural Landscapes in America*. Johns Hopkins University Press, Baltimore, Maryland.

Aldrich, Mark
1995 Preventing "the Needless Peril of the Coal Mine": The Bureau of Mines and the Campaign against Coal Mine Explosions, 1910-1940. *Technology and Culture* 36(3):483-518.

Andrews, John B.
1924 Needless Hazards in the Coal Industry. *Annals of the American Academy of Political and Social Science, Volume III, the Price of Coal. Anthracite and Bituminous*. 24-31.

Barnes, James
2002 *The Life of Reilly: The Archaeology of an 1880s Silver Mine in Panamint Valley, California.* Master's thesis, Department of Anthropology, Sonoma State University, Rohnert Park, California.

Baxter, R. Scott
2002 Industrial and Domestic Landscapes of a California Oil Field. *Historical Archaeology* 36(3):18-27.

Beaudry, Mary C.
1989 The Lowell Boot Mills Complex and Its Housing: Material Expressions of Corporate Ideology. *Historical Archaeology* 23:19-32.

Birnbaum, Charles A.
1994 *Preservation Brief 36: Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes.* U.S. Department of the Interior, National Park Service, Washington, D.C.

California Archaeological Site Stewardship Program (CASSP)
2009 *CASSP: Help Protect the Past*. Electronic document, http://www.cassp.org/, accessed October 2, 2009.

California Office of Historic Preservation
1995 *Instructions for Recording Historical Resources*. Office of Historic Preservation, Sacramento, California.

Cameron, Catherine M., and John B. Gatewood
2003 Seeking Numinous Experiences in the Unremembered Past. *Ethnology* 42(1):55-71.

Clark, Bonnie Jean
2003 *On the Edge of Purgatory: An Archaeology of Ethnicity and Gender in Hispanic Colorado*. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Berkeley.

Conesa, Héctor, Rainer Schulm, Bernd Nowack
2007 Mining Landscape: A cultural tourist opportunity or an environmental problem? The study case of the Cartagena-La Unión Mining District (SE Spain). E*cological Economics* 64:690-700.

Cornford, Daniel
1999 "We all live more like brutes than humans": Labor and Capital in the Gold Rush. In *A Golden State: Mining and Economic Development in Gold Rush California*, edited by James J. Rawls and Richard J. Orsi, pp. 78-97. University of California Press, Berkeley.

DeWelt, Marie
1963 *After Fifty Years, My Happy Childhood Days*. College Press, Joplin, Missouri.

Dubrow, Gail Lee
2000 Asian American Imprints on the Western Landscape. In *Preserving Cultural Landscapes in America*, edited by Arnold R. Alanen and Robert Z. Melnick, pp. 143-168. Johns Hopkins University Press, Baltimore, Maryland.

Duke, Philip, Randall H. McGuire, Dean J. Saitta, Paul E. Reckner, and Mark Walker
2005 The Colorado Coalfield War Archaeological Project: Archaeology Serving Labor. In *Preserving Western History*, edited by Andrew Gulliford, pp. 32-43. University of New Mexico Press, Albuquerque.

East Bay Regional Parks
2006 *Black Diamond Mines Regional Preserve* [brochure]. East Bay Regional Park District, Oakland, California.

Fimrite, Peter
2009 Park ranger asks: where are the black visitors? *San Francisco Chronicle* 9 August:A-1. San Francisco.

Fischenich, Craig, and James V. Morrow, Jr.
2000 *Reconnection of Floodplains with Incised Channels.* Ecosystem Management and Restoration Research Program, U.S. Army Corps of Engineers, Washington, D.C.

Francaviglia, Richard
1991 *Hard Places: Reading the Landscape of America's Historic Mining Districts*. University of Iowa Press, Iowa City.

2000 Selling Heritage Landscapes. In *Preserving Cultural Landscapes in America*, edited by Arnold R. Alanen and Robert Z. Melnick, pp. 44-69. Johns Hopkins University Press, Baltimore, Maryland.

Freme, Fred
2009 *U.S. Coal Supply and Demand, 2008 Review*. U.S. Energy Information Administration, U.S. Department of Energy, Washington, D.C.

Garner, John S.
1992 Introduction. In *The Company Town: Architecture and Society in the Early Industrial Age*, edited by John S. Garner, pp. 3-14. Oxford University Press, New York and Oxford.

Gertsch, Richard E., and Richard L. Bullock (editors)
1998 *Underground Mining: Selections from Underground Mining Methods Handbook*. Society for Mining, Metallurgy, and Exploration, Inc., Littleton, Colorado.

Goddard, Richard A.
2002 Nothing but Tar Paper Shacks. *Historical Archaeology* 36(3):85-93.

Goodyear, W.A.
1890 Alameda County. In *Tenth Annual Report of the State Mineralogist, for the Year Ending December 30, 1890*, edited by William Irelan, pp. 91-95. California State Mining Bureau, Sacramento.

Greene, Charles S.
1898 A California Coal Mine. *Overland Monthly* 31(181):518-527.

Groth, Paul
1997 Frameworks for Cultural Landscape Study. In *Understanding Ordinary Landscapes*, edited by Paul Groth and Todd W. Bressi, pp. 1-24. Yale University Press, New Haven, Connecticut.

2002 Post-Civil War: Industrial Workplaces. Lecture for Environmental Design C169A, University of California, Berkeley.

Hardesty, Donald L.
1990 Evaluating Site Significance in Historical Mining Districts. *Historical Archaeology* 24(2):42-51.

Hardesty, Donald L., and Barbara J. Little
2000 *Site Significance: A Guide for Archaeologists and Historians*. AltaMira Press, Walnut Creek, California.

Hartung, Jr., Erv
2001 The Town of Tesla and a Miner's House in the Frytown Section. *Narrow Gauge and Short Line Gazette* September/October 20-23.

Hayden, Dolores
2000 In Search of the American Cultural Landscape. In *Preserving Cultural Landscapes in America*, edited by Arnold R. Alanen and Robert Z. Melnick, pp. vii-x. Johns Hopkins University Press, Baltimore, Maryland.

Holdsworth, Deryck W.
1997 Landscape and Archives as Texts. In *Understanding Ordinary Landscapes*, edited by Paul Groth and Todd W. Bressi, pp. 44-55. Yale University Press, New Haven, Connecticut.

Hood, Edward J.
1996 Social Relations and the Cultural Landscape. In *Landscape Archaeology: Reading and Interpreting the American Historical Landscape*, edited by R. Yamin and K.B. Metheny, pp. 121-146. University of Tennessee Press, Knoxville.

Hovis, Logan and Jeremy Mouat
1996 Miners, Engineers, and the Transformation of Work in the Western Mining Industry, 1880-1930. *Technology and Culture* 37(3):429-456.

ICOMOS
2007 *The ICOMOS Charter for the Interpretation and Presentation of Cultural Heritage Sites*. ICOMOS, Paris, France.

Jones & Stokes
2000 *California Department of Parks and Recreation Carnegie State Vehicle Recreation Area: General Plan Amendment Environmental Impact Report*. Report prepared for California Parks and Recreation, Twin Cities District, Livermore and Off-Highway Motor Vehicle Recreation Division, Sacramento, California.

Kelly, J.D., and J.D. Hood
1997 *Cultural Resource Inventory, Carnegie SVRA, Proposed Tesla Acquisition.* OHMVR Division, California Department of Parks and Recreation, Sacramento.

La Lone, Mary
2000 *Montgomery County, VA: CMHP: Radford University Study*. Electronic document, http://www.montva.com/departments/plan/cmhp/rucmhp/rutoc.php, accessed November 8, 2008.

Leary, Josephine
n.d. Statements provided by Josephine Leary to Earle Williams. Unpublished manuscript on file, Bancroft Library, University of California, Berkeley.

Limerick, Patricia N.
1987 *The Legacy of Conquest*. Norton & Co., New York.

Los Angeles Times (LAT)
1895 [“Gas explosion in the mine.”] 21 November. Los Angeles.

1897 [“Miners lose suit against company.”] 21 December. Los Angeles.

1898 [“Death of a miner on a trolley car.”] 25 March. Los Angeles.

[“Houses at Tesla burned down.”] 14 August. Los Angeles.

1899 [“Strike over wage cut.”] 9 December. Los Angeles.

1900 [“Quarantine in Darktown.”] 10 December. Los Angeles.

1901 [“Miners lose suit against company.”] 9 July. Los Angeles.

[“Brick manufacturing plant at Carnegie.”] 11 September. Los Angeles.

[“Usage of Tesla coal to make briquettes in Stockton.”] 22 November. Los Angeles.

Lowenthal, David
2003 Pioneering Stewardship: New Challenges for CRM. *CRM: The Journal of Heritage Stewardship* 1(1):7-13.

Lucas, Michael T.
2004 Applied Archaeology and the Construction of Place at Mount Calvert, Prince George’s County, Maryland. In *Places in Mind: Public Archaeology as Applied Anthropology*, edited by Paul A. Shackel and Erve J. Chambers, pp. 119-134. Routledge, New York.

Mackintosh, Barry
1986 *Interpretation in the National Park Service: A Historical Perspective*. U.S. Department of the Interior, Washington, D.C. Electronic document, http://www.nps.gov/history/history/online_books/mackintosh3/index.htm, accessed May 7, 2008.

Markwell, Kevin, Deborah Stevenson, and David Rose
2004 Footsteps and Memories: Interpreting an Australian Urban Landscape through Thematic Walking Tours. I*nternational Journal of Heritage Studies* 10(5):457-473.

McClelland, Linda Flint, J. Timothy Keller, Genevieve P. Keller, and Robert Melnick
1999 Guidelines for Evaluating and Documenting Rural Historic Landscapes. *National Register Bulletin 30*. U.S. Department of the Interior, National Park Service, Washington, D.C.

McGuire, Randall H., and The Ludlow Collective
2008 Ludlow. In *Archaeology as Political Action*, edited by Randall H. McGuire, pp.188-221. University of California Press, Berkeley.

McGuire, Randall H., and Paul Reckner
2002 The Unromantic West: Labor, Capital, and Struggle. *Historical Archaeology* 36(3):44-58.

Melnick, Robert Z.
2000 Considering Nature and Culture in Historic Landscape Preservation. In *Preserving Cultural Landscapes in America*, edited by Arnold R. Alanen and Robert Z. Melnick, pp. 22-43. Johns Hopkins University Press, Baltimore, Maryland.

Mernitz, Kenneth S.
1990 The Rittman Refining Process. *Technology and Culture* 31(1):83-113.

Metheny, Karen Bescherer
2007 *From the Miners' Doublehouse: Archaeology and Landscape in a Pennsylvania Coal Company Town*. University of Tennessee Press, Knoxville.

Meyners, Alice
1975a Interview conducted by Dan Mosier, 8 June. Unpublished manuscript on file, Bancroft Library, University of California, Berkeley.

1975b Interview conducted by Dan Mosier, 26 June. Unpublished manuscript on file, Bancroft Library, University of California, Berkeley.

Mine Safety and Health Administration (MSHA)
2009 History of Mine Safety and Health Legislature. Electronic document, http://www.msha.gov/MSHAINFO/MSHAINF2.HTM, accessed October 20, 2007.

Mosier, Dan L.
1983 *Corral Hollow Coal Mining District*. Unpublished manuscript on file California State Parks Off-Highway Vehicle Motor Recreation Division Headquarters, Sacramento.

2003a *History of Harrisville*. Unpublished manuscript on file at California State Parks Off-Highway Vehicle Motor Recreation Division Headquarters, Sacramento.

2003b *History of Tesla, California.* Unpublished manuscript on file California State Parks Off-Highway Vehicle Motor Recreation Division Headquarters, Sacramento.

Mosier, Dan L., and Earle E. Williams
2002 *History of Tesla: A California Coal Mining Town*. Mines Road Books, Fremont, California.

Moyer, Theresa, and Paul A. Shackel
2008 *The Making of Harpers Ferry National Historic Park: A Devil, Two Rivers, and a Dream.* AltaMira Press, Lanham, Maryland.

National Park Service (NPS)
1997 How to Apply the National Register Criteria for Evaluation. *National Register Bulletin 15*. U.S. Department of the Interior, National Park Service, Washington, D.C.

2007 *Wrangell-St. Elias National Park and Preserve – Kennecott Mines National Historic Landmark*. U.S. Department of the Interior, National Park Service, Washington, D.C.

Electronic document, http://www.nps.gov/wrst/historyculture/kennecott.htm, accessed August 7, 2009.

2009a *Lowell National Historic Park.* U.S. Department of the Interior, National Park Service, Washington, D.C. Electronic document, http://www.nps.gov/lowe/planyourvisit/index.htm, accessed September 12, 2009.

2009b *Preservation Planning and the Treatment of Cultural Landscapes: Cultural Landscape Guidelines*. U.S. Department of the Interior, National Park Service, Washington, D.C. Electronic document, http://www.nps.gov/hps/hli/landscape_guidelines/preservation_planning.htm, accessed May 15, 2009.

Newland, Michael
2008 *Interim Field Report on Known Mining Portals within the Tesla Mining Complex and Surrounding Sites in the Carnegie State Vehicle Recreation Area, Alameda County, California*. Anthropological Studies Center, Sonoma State University, Rohnert Park, California.

Noble, Bruce J., and Robert Spude
1997 Guidelines for Identifying, Evaluating, and Registering Historic Mining Properties. *National Register Bulletin 42*. U.S. Department of the Interior, National Park Service, Washington, D.C.

Oakland Tribune (OT)
1900 [“Bunkhouse built for Chinese and Japanese laborers.”] 8 October. Oakland, California.

1901 [“Tree planting and house additions.”] 31 January. Oakland, California.

1905 [“Briquette plant in Stockton burns down.”] 10 October. Oakland, California.

1906 [“Nine-hour day for pottery workers.”] 31 January. Oakland, California.

Orange County Register
2009 Attendance at national parks booming. 27 September. Santa Ana, California.

O’Riordan, Timothy, Ann Shadrake, and Christopher Wood
1989 Interpretation, participation, and National Park planning. In *Heritage Interpretation, Volume 1: The Natural and Built Environments*, edited by David Uzzell, pp. 179-189. Belhaven Press, London.

Pierce, Robert, and Robert Spude
n.d. *National Register of Historic Places Inventory-Nomination: Kennecott Mines*. Electronic document, http://www.pdfhost.focus.nps.gov/docs/NHLS/Text/78003420.pdf, accessed August 7, 2009.

Placerville Mountain Democrat (PMD)
1897 [“Construction of permanent housing at Tesla.”] 9 November. Placerville, California.

1898 ["Miners to blame for accident."] 11 June. Placerville, California.
["500 men on the payroll for the SF & SJ Coal Co."] 29 March. Placerville, California.

Riley, Robert
1997 The Visible, the Visual, and the Vicarious: Questions about Vision, Landscape, and Experience. In *Understanding Ordinary Landscapes*, edited by Paul Groth and Todd W. Bressi, pp. 200-210. Yale University Press, New Haven, Connecticut.

Robbins, William G.
1994 *Colony & Empire: The Capitalist Transformation of the American West*. University Press of Kansas, Lawrence.

Rosenthal, Jeffrey S., Gregory G. White, and Mark Q. Sutton
2007 The Central Valley: A View from the Catbird's Seat. In *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn Klar, pp. 147-164. AltaMira Press, Lanham, Maryland.

Roth, Leland M.
1992 Company Towns in the Western U.S. In *The Company Town: Architecture and Society in the Early Industrial Age*, edited by John S. Garner, pp. 173-206. Oxford University Press, New York and Oxford.

Rubenstein, Steve
2009 Cutbacks Will Affect State Park Enthusiasts. *New York Times* 30 October:A25A. New York.

San Francisco Chronicle (SFC)
1897 ["Union scale and company store at Tesla."] 20 March. San Francisco.

1898 ["Miners to blame for accident."] 30 September. San Francisco.

1899 ["Lack of timbering causes death."] 27 July. San Francisco.
["Coal miners brought from Pennsylvania."] 20 June. San Francisco.

Schofield, John
2005 Discordant Landscapes: Managing Modern Heritage at Twyford Down, Hampshire (England). *International Journal of Heritage Studies* 11(2):143-159.

Shackel, Paul A.
2000 *Archaeology and Created Memory: Public History in a National Park*. Kluwer Academic/Plenum Publishers, New York.

2001 Public Memory and the Search for Power in American Historical Archaeology. *American Anthropologist* 10(3):655-670.

Shackel, Paul A., and David A. Gadsby
2008 "I Wish for Paradise": Memory and Class in Hampden, Baltimore. In *Collaboration in Archaeological Practice*, edited by Chip Colwell-Chanthaphonh and T.J. Ferguson, pp. 225-242. AltaMira Press, Lanham, Maryland.

Shackel, Paul, and Matthew M. Palus
2006 The Gilded Age and Working-Class Industrial Communities. *American Anthropology* 108(4):828-841.

Smith, Duane
1990 "No Risk, No Gain": The Heritage Mining West. In *Death Valley to Deadwood; Kennecott to Cripple Creek: Proceedings of the 1989 Historic Mining Conference*, edited by Leo R. Barker and Ann E. Huston, pp. 11-14. Death Valley National Monument, Division of National Register Programs, Western Regional Office, National Park Service, U.S. Department of the Interior.

Stanton, Cathy
2006 *The Lowell Experiment: Public History in a Postindustrial City*. University of Massachusetts Press, Amherst.

State of California
2009a *Carnegie SVRA.* California State Parks, Sacramento. Electronic document, http://ohv.parks.ca.gov/?page_id=1172, accessed April 2, 2009.

2009b *OHV: Mission Statement.* California State Parks, Sacramento. Electronic document, http://ohv.parks.ca.gov/?page_id=1246, accessed April 2, 2009.

Stockton Daily Independent (SDI)
1895 ["State Mining Bureau visit to Treadwell and the mine."] 7 June. Stockton, California.

Sullivan, Raymond, and John Waters
1980 History of Mount Diablo Coalfield, Contra Costa County, California. *California Geology* (March):51-59.

Trettin, Lillian
1990 The Case of the Crippled Blockholer: Miners, Managers, and Talk About Early Twentieth-Century Industrial Accidents. *The Oral History Review* 18(1):1-27.

U.S. Federal Census
1900 Twelfth Census of the United States. Enumeration District 33, Murray Township, Alameda County, California.

Uzzell, David (editor)
1989 *Heritage Interpretation, Volume 2: The Visitor Experience*. Belhaven Press, London.

Van Bueren, Thad M.
2002a The Changing Face of Work in the West: Some Introductory Comments. *Historical Archaeology* 36(3):1-7.

2002b Communities Defined by Work: Life in Western Work Camps. *Historical Archaeology* 36(3).

2002c Struggling with Class Relations at a Los Angeles Aqueduct Construction Camp. *Historical Archaeology* 36(3):28-43.

Waghorn, Annita
2002 *"A wilderness on your doorstep": cultural landscapes and the management of public lands*. Unpublished M.A. Thesis, Cultural Resources Management, Sonoma State University, Rohnert Park, California.

Wagner, D.L., E.J. Bortungo, and R.D. McJunkin
1990 Geologic Map of the San Francisco-San Jose Quadrangle, 1:250,000. Division of Mines and Geology, Sacramento, California.

Walker, Richard
1997 Unseen and Disbelieved: A Political Economist among Cultural Geographers. In *Understanding Ordinary Landscapes*, edited by Paul Groth and Todd W. Bressi, pp. 162-173. Yale University Press, New Haven, Connecticut.

Wallace, William J.
1978 Northern Valley Yokuts. In *California*, edited by Robert F. Heizer, pp. 462-470. Handbook of North American Indians, Volume 8; William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Ward, Carolyn J. And Alan E. Wilkinson
2003 *Basic Interpretation Learning System: Making connections; the essence of interpretation*. California State Parks, Sacramento.

Waterton, Emma
2005 Whose Sense of Place? Reconciling Archaeological Perspectives with Community Values: Cultural Landscapes in England. *International Journal of Heritage Studies* 11(4):309-325.

Watson, Michael D.
1989 An Interpretive Challenge: The U.S. Park Service Approach to Meeting Visitor Needs. In *Heritage Interpretation, Volume 1: The Natural and Built Environment*, edited by David Uzzell, pp. 78-83. Belhaven Press, London.

Woodland Daily Democrat (WDD)
1898 ["Miners leaving work following an accident."] 1 April. Woodland, California.